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ABSTRACT

This is the teacher's manual to accompany part of the workbook for kindergarten pupils in the Comprehensive Instructional Management System, a teacher-designed unified mathematics curriculum for kindergarten through grade 7. It is composed of a curriculum, a testing component, and a computer-managed reporting system. The curriculum is organized into modules of similar skills or understandings from 14 topics. Each module has: a suggested period of duration for student mastery; a listing of new skills to be mastered by the student in the form of performance objectives; a section devoted to vocabulary, terms, and symbols; getting started activities on prerequisite skills in preparation for undertaking new objectives; strategies for teaching the new skills; and student activities for providing reinforcement for the newly learned objective. After the sequence of modules and content by topic are displayed, teaching suggestions for 51 modules on 76 performance objectives are given. The content is from the topics of: numbers and numeration; addition; subtraction; fractions; geometry; measurement; graphs, probability, statistics; and problem solving. Pages from the student's workbook are interspersed with the suggested activities. (MNS)

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COMPREHENSIVE INSTRUCTIONAL MANAGEMENT SYSTEM

A Cyclical Mathematics Curriculum

PART 1—TEACHER

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FOREWORD

The Comprehensive Instructional Management System (CIMS) is a unified mathematics curriculum for grades K-7. The curriculum is cyclical in design, and reflects the most recent New York City and New York State guidelines.

Utilizing the experience of our system's teachers, we have developed a teacher-designed curriculum that includes a rich selection of classroom-tested successful mathematics activities. The major goal of the CIMS mathematics project is to provide the classroom teacher with a well-structured, objective-based curriculum. All objectives are supported by a variety of strategies. Student mastery of these objectives is readily diagnosed through the system's testing component.

The curriculum format is structured to allow the teacher to determine the ability level of the students in the topic under study, and to permit the students to move forward at their individual rates. Each module of instruction provides the teacher with a set of related performance objectives. These objectives are supported by activities which probe and develop the students' readiness to undertake new skills and concepts. Further reinforcement is given to mastery of the objectives through accompanying student workbooks.

It is hoped that this curriculum will not only assist teachers in developing vital mathematics instruction, but will serve to expand and enrich students' mathematics skills.

Charlotte Frank

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ACKNOWLEDGMENTS - 1984

The Comprehensive Instructional Management System (CIMS) was developed as a project of the Division of Curriculum and Instruction, Charlotte Frank, Executive Director. Dr. Peter Negroni, Community School Superintendent CSD 12; Dr. Harvey Garner, Community School Superintendent CSD 18; Carlos Edwards, Community School Superintendent CSD 23, and Joseph Pacheco, Community School Superintendent CSD 32 supervised the overall development of the CIMS program within their respective districts.

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INTRODUCTION

The Comprehensive Instructional Management System (CIMS) is a teacher-designed educational delivery system composed of a curriculum, a testing component and a computer managed reporting system.

Designed to support mathematics instruction in the classroom, CIMS provides a comprehensive cyclical mathematics curriculum for grades K through 7. Each manual describes the curriculum for a single level or grade. Teacher curriculum developers from elementary, intermediate and senior high schools utilized the most current New York City and New York State guidelines in formulating the curriculum's modules and sequence.

Curriculum Topics

The CIMS mathematics curriculum has been organized into the following 14 topics:

.01 Numbers and Numeration
.02 Addition of Whole Numbers
.03 Subtraction of Whole Numbers
.04 Multiplication of Whole Numbers
.05 Division of Whole numbers
.06 Fractions
.07 Decimals
.08 Integers
.09 Geometry
.10 Measurement
.11 Algebraic Concepts
.12 Graphs, Probability, Statistics
.13 Problem Solving
.14 Review

Modules of Instruction

The CIMS curriculum is organized into modules or groupings of similar skills or understandings. Each module has a suggested period of duration for student mastery, a listing of new skills to be mastered by the student in the form of performance objectives, a section devoted to vocabulary, terms and symbols, getting started activities which serve as prerequisite skills in preparation for undertaking new objectives, strategies for teaching the new skills and student activities for providing reinforcement for the newly learned objective. Note that

the lesson duration is included only as a guideline to the teacher for planning purposes. The actual time required for each module will vary from class to class and from child to child depending on the needs of the students and the teacher's judgment.

Priorities of Performance Objectives

There is an order of priority to be recognized in teaching the content presented in the CIMS NEW YORK CITY MATHEMATICS CURRICULUM. Performance objectives with the greatest priority are so basic that unless the student acquires a satisfactory degree of competency in them, the student cannot progress. Such topics are marked A and mastery by all pupils is essential.

Performance objectives marked B are required to be presented to all students. Mastery is not expected at this time. These objectives will be developed further and reinforced later.

Performance objectives marked C are of special interest. These should be taught to increase positive attitudes towards mathematics.

Summary: A - Mastery of this objective is essential for progress. Opportunities for reinforcement should be provided throughout the school year.

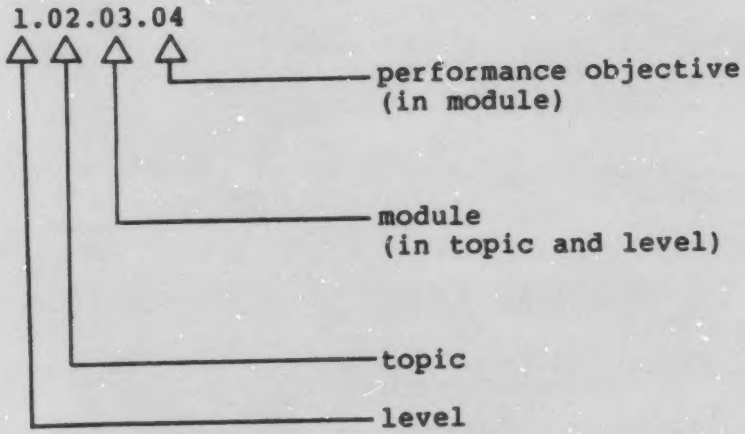
B - These objectives are to be taught to all pupils. Mastery is not essential at this time because the topics will be further developed and reinforced.

C - Objectives of special interest.

Topic Tab Key

01. Numbers and Numeration
02. Addition of Whole Numbers
03. Subtraction of Whole Numbers
04. Multiplication of Whole Numbers
05. Division of Whole Numbers
06. Fractions
07. Decimals
08. Integers
09. Geometry
10. Measurement
11. Algebraic Concepts
12. Graphs, Probability, Statistics
13. Problem Solving
14. Review

Module Coding Key



INSTRUCTIONAL SEQUENCE DESCRIPTION

An instructional sequence is given in list form on the following pages for this level. Each module in the list is described by its unit number, module number, title, and page location.

The sequence has been arranged to reflect what is considered the most effective presentation of the mathematics curriculum.

INSTRUCTIONAL SEQUENCE - LEVEL K

UNIT NUMBER	MODULE NUMBER	MODULE TITLE	PAGE NUMBER
1	0.01.01	Identification of numbers around us.....	1
2	0.01.02	Spatial relationships.....	2
3	0.13.01	Problem solving: language.....	3
4	0.13.02	Problem solving: one-to-one correspondence...	4
5	0.01.03	Classification by attributes.....	5
6	0.01.04	Groups.....	7
7	0.01.05	Comparison of sets.....	8
8	0.01.06	More vocabulary.....	9
9	0.09.01	Identification - parts of three-dimensional shapes.....	11
10	0.01.07	Numerals one (1) through four (4).....	12
11	0.10.01	Non-standard measurement.....	13
12	0.10.02	Weight.....	14
13	0.10.03	Capacity of containers.....	15
14	0.10.04	Time of day.....	16
15	0.10.05	Calendar.....	17
16	0.01.08	More identification of numbers around us.....	18
17	0.09.02	Shapes around us.....	19
18	0.01.09	Spatial relationships - extended vocabulary...	20
19	0.10.06	General temperature measurement terms.....	22
20	0.10.07	Size concepts.....	23
21	0.10.08	Money: pennies.....	24
22	0.02.01	Addition.....	25
23	0.02.02	Add one.....	26
24	0.01.10	Conservation of the number in a set.....	27
25	0.12.01	Number relationships.....	28

INSTRUCTIONAL SEQUENCE - LEVEL K

UNIT NUMBER	MODULE NUMBER	MODULE TITLE	PAGE NUMBER
26	0.01.11	Numerals five (5) through nine (9)	30
27	0.01.12	Numeral zero (0)	31
28	0.10.09	Instruments of measurement	32
29	0.01.13	Numeral ten (10)	33
30	0.02.03	Plus (+) and equal (=) signs	34
31	0.02.04	Add two	35
32	0.02.05	Add three	36
33	0.10.10	Time relationships	37
34	0.03.01	Subtraction	38
35	0.10.11	Comparative size terms	39
36	0.10.12	Coins: nickel and dime	40
37	0.12.02	Graph reading	41
38	0.01.14	Sequence	42
39	0.01.15	Ordinal numbers first through fourth	43
40	0.02.06	Addition extension	44
41	0.12.03	Chance events	45
42	0.06.01	A whole unit	46
43	0.06.02	Share objects	47
44	0.06.03	Compare a half unit to a whole unit	48
45	0.06.04	The fraction one-half ($\frac{1}{2}$)	49
46	0.01.16	Construct and count using a number line	50
47	0.01.17	Ordinal numbers first through tenth	51
48	0.01.18	Numerals eleven (11) through fifteen (15)	52
49	0.10.13	Money: quarters through dollar bill	53
50	0.02.07	Add four	54
51	0.02.08	Add five through nine	55

CONTENT BY TOPIC

LEVEL K

Topic 01: Numbers and Numeration

0.01.01 Identification of numbers around us..... 1
0.01.02 Spatial relationships..... 2
0.01.03 Classification by attributes..... 5
0.01.04 Groups..... 7
0.01.05 Comparison of sets..... 8
0.01.06 Vocabulary..... 9
0.01.07 Numerals one (1) through four (4)..... 12
0.01.08 More identification of numbers around us... 18
0.01.09 Spatial relationships - extended vocabulary 20
0.01.10 Conservation of the number in a set..... 27
0.01.11 Numerals five (5) through nine (9)..... 30
0.01.12 Numeral zero (0)..... 31
0.01.13 Numeral ten (10)..... 33
0.01.14 Sequence..... 42
0.01.15 Ordinal numbers first through fourth..... 43
0.01.16 Construct and count using a number line.... 50
0.01.17 Ordinal numbers first through tenth..... 51
0.01.18 Numerals eleven (11) through fifteen (15).. 52

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0.02.02 Add one..... 26
0.02.03 Plus (+) and Equal (=) Symbols..... 34
0.02.04 Add two..... 35
0.02.05 Add three 36
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0.02.07 Add four..... 54
0.02.08 Add five through nine..... 55

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0.03.01 Subtraction..... 38

Topic 06: Fractions

0.06.01 A whole unit..... 46
0.06.02 Share objects..... 47
0.06.03 Compare a half unit to a whole unit..... 48

CONTENT BY TOPIC

LEVEL K

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Topic 09: Geometry

0.09.01 Identification - parts of three-dimensional shapes..... 11

0.09.01 Shapes around us..... 19

Topic 10: Measurement

0.10.01 Non-standard measurement..... 13

0.10.02 Weight..... 14

0.10.03 Capacity of containers..... 15

0.10.04 Time of day..... 16

0.10.05 Calendar..... 17

0.10.06 General temperature measurement terms..... 22

0.10.07 Size concepts..... 23

0.10.08 Money: pennies..... 24

0.10.09 Instruments of measurement..... 32

0.10.10 Time relationships..... 37

0.10.11 Comparative size terms..... 39

0.10.12 Coins: nickel and dime..... 4[illegible]

0.10.13 Money: quarters through dollar bill..... 53

Topic 12: Graphs, Probability, Statistics

0.12.01 Number relationships..... 28

0.12.02 Graph reading..... 41

0.12.03 Chance events..... 45

Topic 13: Problem Solving

0.13.01 Problem solving: language..... 3

0.13.02 Problem solving: one-to-one correspondence..... 4

Unit 1

0.01.01 IDENTIFICATION OF NUMBERS AROUND US

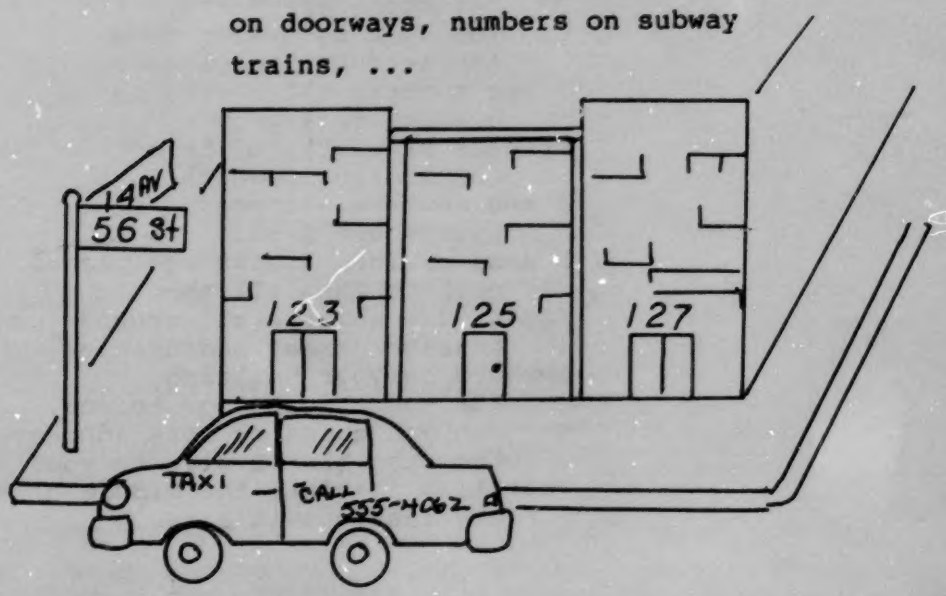
(1 lesson/ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.01.01 identify number names in the environment.
e.g.,

- home - numbers on the clock, TV channel selector, ...
- classroom - hook numbers in the classroom closet, ...
- school - room numbers in the hall, numbers on school buses, seat numbers in the auditorium, numbers in the lunchroom, ...
- neighborhood - numbers on street signs, on buses, address numbers on doorways, numbers on subway trains, ...



0.01.01

VOCABULARY

TERMS

numerals
numbers

GETTING STARTED

Display numerals in random order on the flannel board. Say, "There are numbers all around us. Where are the numbers on our classroom door?" After they are pointed out, say, "These numbers say __ __ __. We have a class number too." Tell the students the number that their class has been designated, e.g. K - 126.

Read the poem, "Numbers Around Me" by Joseph A. Porzio.

I see numbers all around me
everywhere I go.
Numbers all around me,
all of which I know.
My parents have a license on
the family car they drive.
I know the numbers on the plate
four, one, two, three...six, five.
My telephone has numbers,
but there are letters too.
Can you tell my number from
the letters I give to you?
I see numbers all around me
everywhere I go.
My date of birth, my height and weight,
the stores to which I go.
I see numbers all around me
everywhere I go.
Buses, trains, trucks and planes,
numbers they all show.
You'll see numbers all around you
on each street and avenue.
Numbers on your building,
the house next door to you.
And can you guess my home address
from the hint I give to you?
The first is nine, the middle blank,
the last one is a two.

0.01.01

0.01.01.01 **identify number names in the environment**

STRATEGY 1: Prepare pictures of familiar home objects that have numbers. Also prepare magazines, paste and paper. Say, "Where do we find numbers in the home?" (Clocks, T.V. channel selectors, refrigerators, toasters, gas and electric meters, clothing has size numbers, washing machines and dryers, light bulbs, telephones.) Display pictures you have prepared and ask the students to identify the pictures and show where the numbers are found.

Recite the poem:

There are numbers all over my house,
On my shoes and mother's blouse,
Numbers up and numbers down,
There are numbers all around.

Distribute magazines, paste and paper and ask the students to find a picture of an object that has numbers.

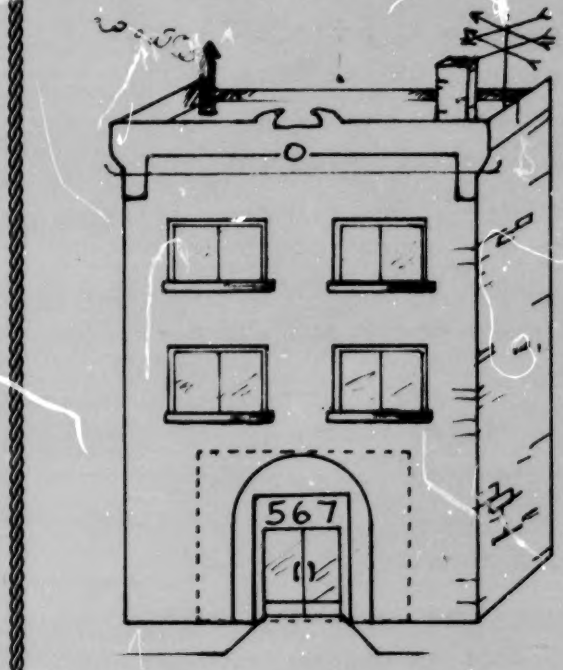
STRATEGY 2: Take the students for a walk through the building pointing out the numbers on the classroom doors, exits, ... Say, "The number of our school is P. S. __ __ __. Let's look around our classroom. What can you identify that has numbers?" (T.V. channel selector, calendar, number charts, telephone in doll corner, typewriter, scales, computers, clocks.)

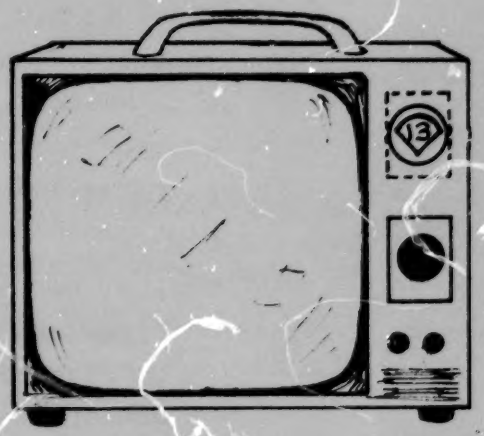
Walk through the neighborhood, pointing out numbers on houses, street signs and store windows.

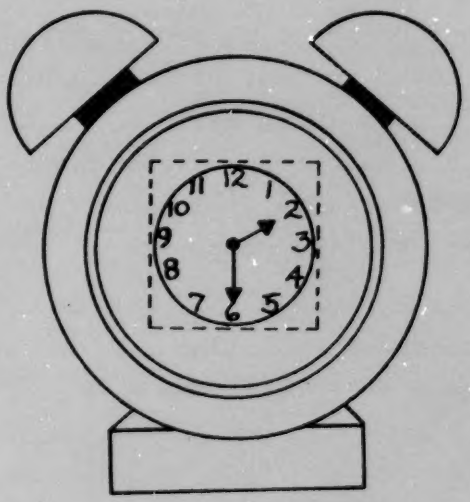
P.O. 0.01.01.01

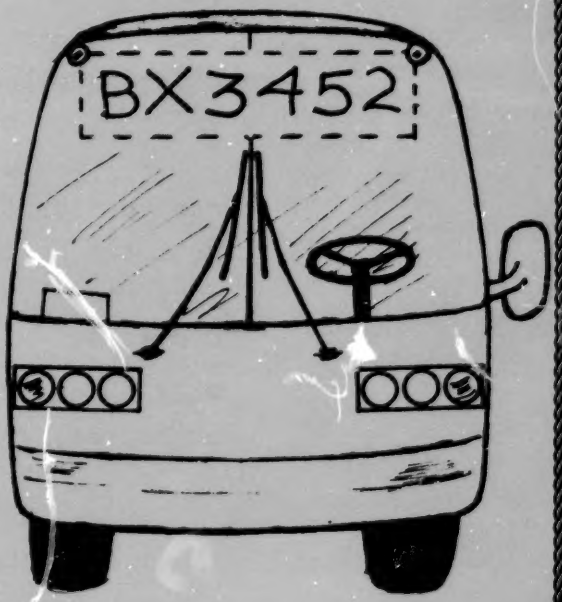
NAME: _____ CLASS: _____

Name each object. Color the part that has numbers.





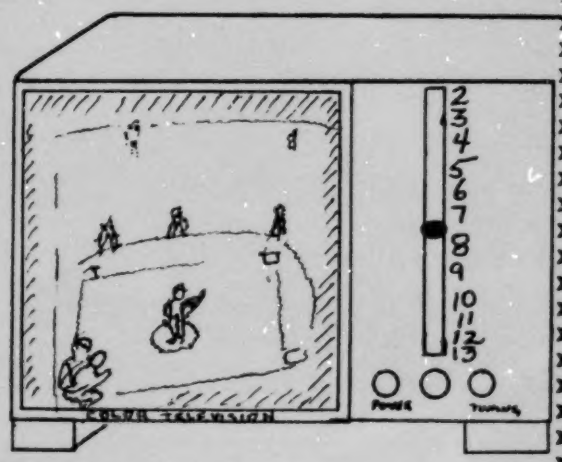




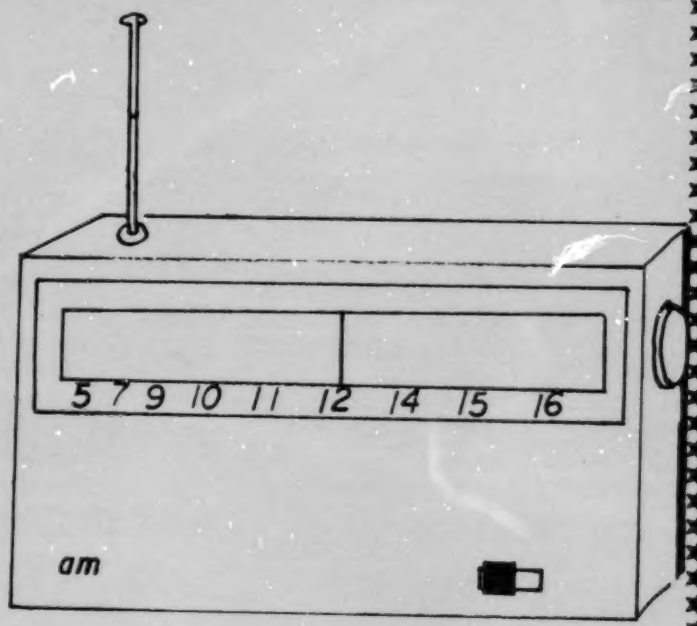
P.O. 0.01.01.01

NAME: _____ CLASS: _____

Name each object. Color the part that has nurbers.



MARCH						
Sun.	Mon	Tue	Wed	Thur	Fri	Sat
		1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31		



0.01.02 SPATIAL RELATIONSHIPS

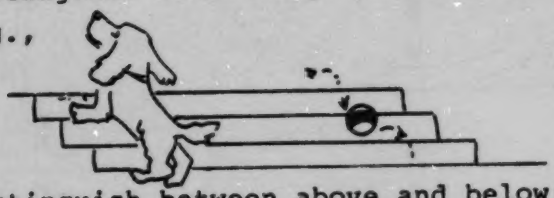
(5 lessons/ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.02.01 distinguish between in front of and in back of;
e.g.,

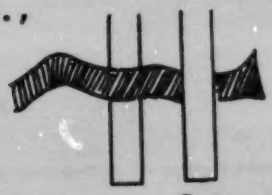
0.01.02.02 distinguish between up and down;
e.g.,



0.01.02.03 distinguish between above and below;
e.g.,

0.01.02.04 distinguish between on and off;
e.g.,

0.01.02.05 distinguish between over and under.
e.g.,



0.01.02

VOCABULARY

TERMS

in front of	on
in back of	off
up	over
down	under
above	on top
below	

GETTING STARTED

Prepare an area in the room for a pantomime activity. Say, "Watch me carefully. Do what I do." Place your hands on your head. Check to see that each student has his/her hands on his/her head. Repeat this procedure using other movements, e.g., hands in front outstretched, hands in back joined, hands on shoulders, hands on waist, hands raised over head, ... As the students become familiar with the game, do the movements in rapid succession.

Teach this action poem:

On my head my hands I place.
On my shoulder, on my face,
On my hips and at my side,
Then behind me they will hide.
I will hold them up so high,
Quickly make my fingers fly.
Hold them out in front of me,
Softly clap 1, 2, 3.

0.01.02

0.01.02.01 distinguish between in front of and in back of

STRATEGY 1: Assemble a row of chairs. Ask some students to stand in front of the chairs and some in back of the chairs. Say, "Jenny is standing in front of the chair. David is standing in back of the chair." Ask Jenny to raise her hand. Say, "Everyone standing in front of the chair, as Jenny is, please raise your hands and say, 'I am standing in front of the chair'." Repeat this procedure for students who are standing in back of the chair.

STRATEGY 2: Distribute an unsharpened pencil, a block and a paint brush to each student. Demonstrate as you say, "Place your pencil in front of you. Place the block in back of the pencil. Place the paint brush in back of the block. Which object is in front of the block? Which object is in back of the block?" Continue exploring and questioning so that all possible positions are discussed.

Repeat this procedure using other color arrangements.

0.01.02.02 distinguish between up and down

STRATEGY 1: Teach this action song:

When I'm up I'm up (stand up and stretch)
When I'm down I'm down. (crouch)
But when I'm only half-way up (stand partway up)
I'm neither up nor down. (jump up, crouch down)

Say, "Show us how you stand up. Show us how you sit down."

0.01.02

STRATEGY 2: Prepare an area in the room for a movement activity. Demonstrate and say, "Put your hand up, put your hand down. Stand up, sit down. Pretend to climb up a slide. Now slide down." Ask the students to repeat similar actions while verbalizing about their movements.

Repeat this procedure using other movements involving up and down.

0.01.02.03 **distinguish between above and below**

STRATEGY 1: Demonstrate while saying, "I put my hands above my head. Put your hands above your head. I put my hands below my chin. Put your hands below your chin." After each action, ask the students to tell what they did in a complete sentence, e.g., I put my hand above my head.

Repeat this procedure using other instructions.

STRATEGY 2: Prepare activity cards showing a red square above a yellow square, a blue square below a red square, a yellow square above a red square, ... Distribute an activity card and a red, yellow and blue paper square to each student. Say, "The word 'above' means on top. The word 'below' means lower than. Place the paper squares on the squares on your activity card." Demonstrate. Question each student about the squares on his/her card, e.g., "Which square is above the yellow square?" Ask the students to exchange cards and repeat this procedure.

0.01.02

0.01.02.04 distinguish between on and off

STRATEGY 1: Teach this poem:

Let's go for a ride on the bumpety bus,
The bumpety, bumpety, bumpety bus.
We'll all step on, then all step off,
And go for a ride on the bumpety bus.

Say, "I am the bus driver of this bumpety bus. I am going to stop at Jane's Street so that Jane can step on the bus. When it is your turn to board the bus say, 'I am getting on the bus'." Continue until all the students have boarded the bus.

Say, "The bumpety bus is getting crowded. As we arrive back at your seat, step off the bus and say, 'I am getting off the bus', and sit in your seat." Continue until everyone is seated.

STRATEGY 2: Display several articles of outer clothing. Say, "Put on the mittens, put on the hat, take off a sweater, ..." Ask the students to pantomime getting dressed for school and then verbalize their dressing procedure emphasizing that they are putting their clothing on.

Repeat this procedure for their arrival at school, emphasizing that they are taking off some of their clothing.

STRATEGY 3: Prepare and distribute various containers and their matching covers (e.g. margarine tubs, plastic bottles and small boxes) placed in a box to each group of students. Covers should not be on the containers when placed in the box. Say, "Match each cover to its container and put it on."

When this task has been completed, say, "Take the covers off the containers. Place the covers and the containers into the box."

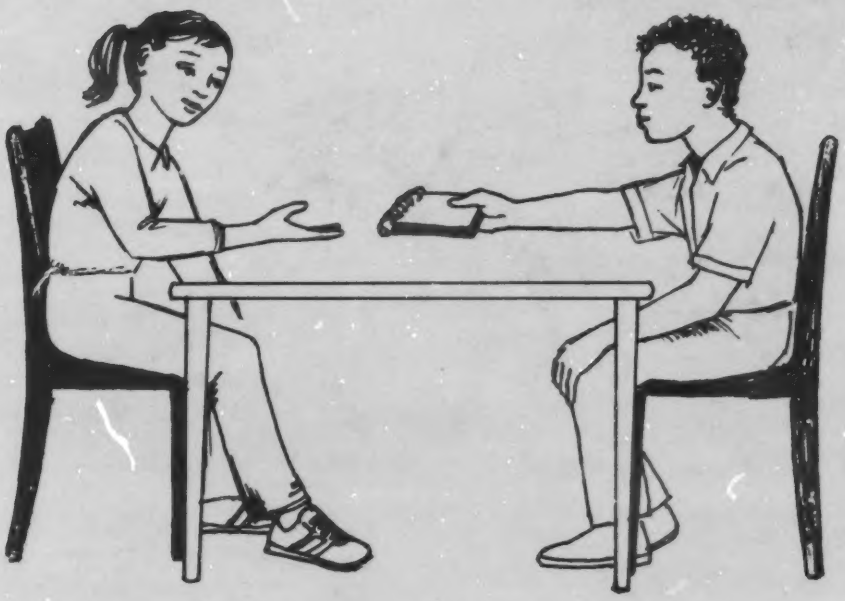
0.01.02

0.01.02.05 **distinguish between over and under**

STRATEGY 1: Prepare a jump rope and a large playground ball. Ask two students to hold the jump rope tightly in a straight line at waist height. Demonstrate and say, "Let's bend down and walk under the rope. What have we done? Let's roll the ball under the rope. What have we done?" Continue with other movements emphasizing under.

Repeat this procedure using activities for over. e.g., Step over the rope.

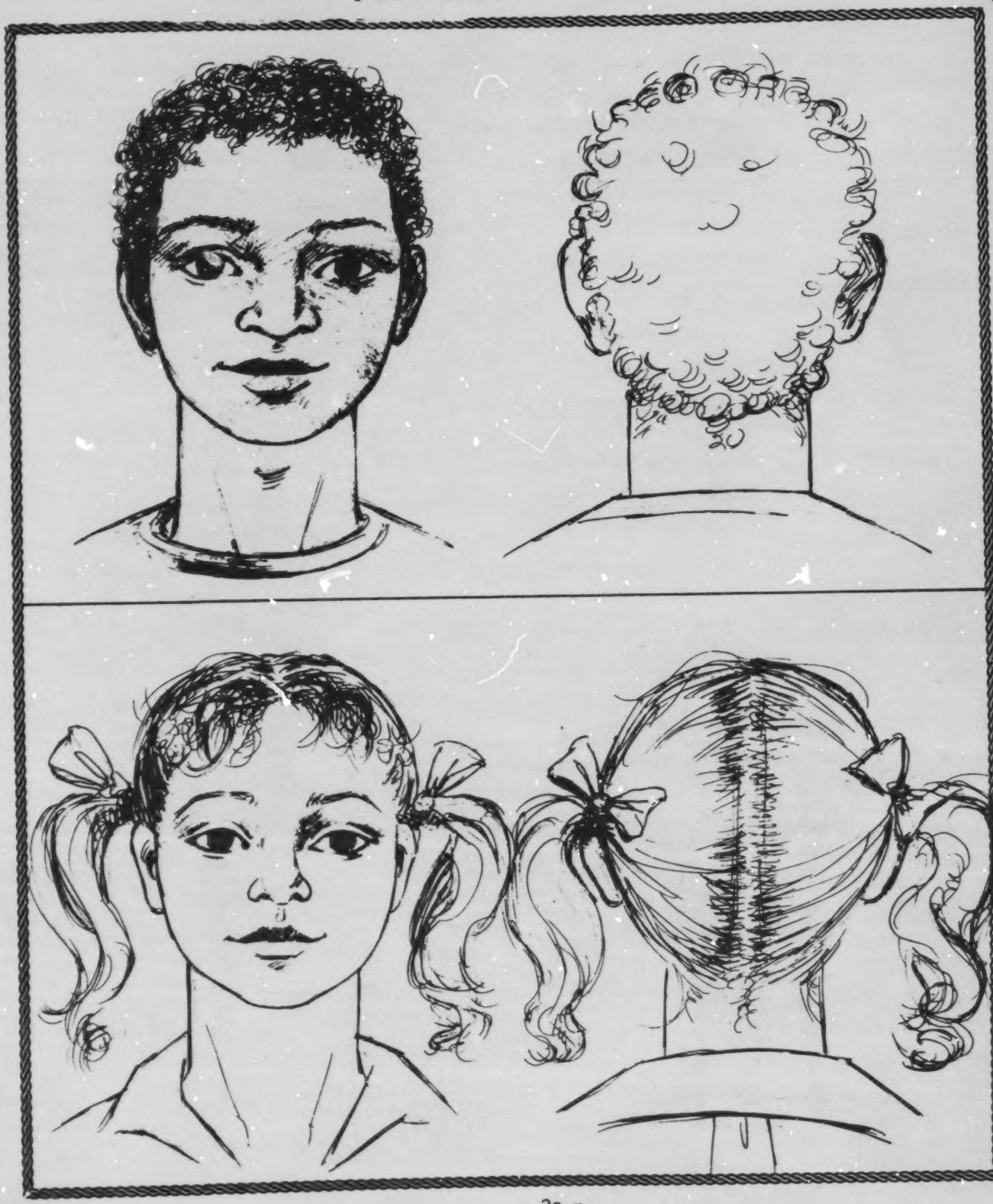
STRATEGY 2: Seat the students in pairs, facing each other, with a desk between them. Demonstrate as you say, "Pass your crayon to your partner over the desk. Now pass your crayon to your partner under the desk." Repeat this procedure using other objects. Ask students to verbalize what they are doing as it is being done. e.g., I am passing my notebook over the desk to Rose.



P.O. 0.01.02.01

NAME: _____ CLASS: _____

X the front of the boy's head.
X the back of the girl's head.

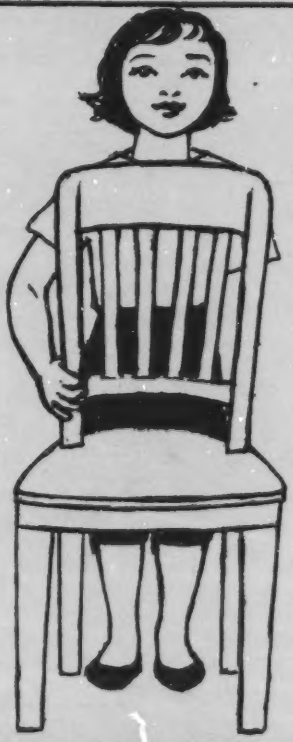


P.O. 0.01.02.01

NAME: _____ CLASS: _____

X the boy who is seated behind the table.

X the girl who is in front of the chair.



P.O. 0.01.02.02

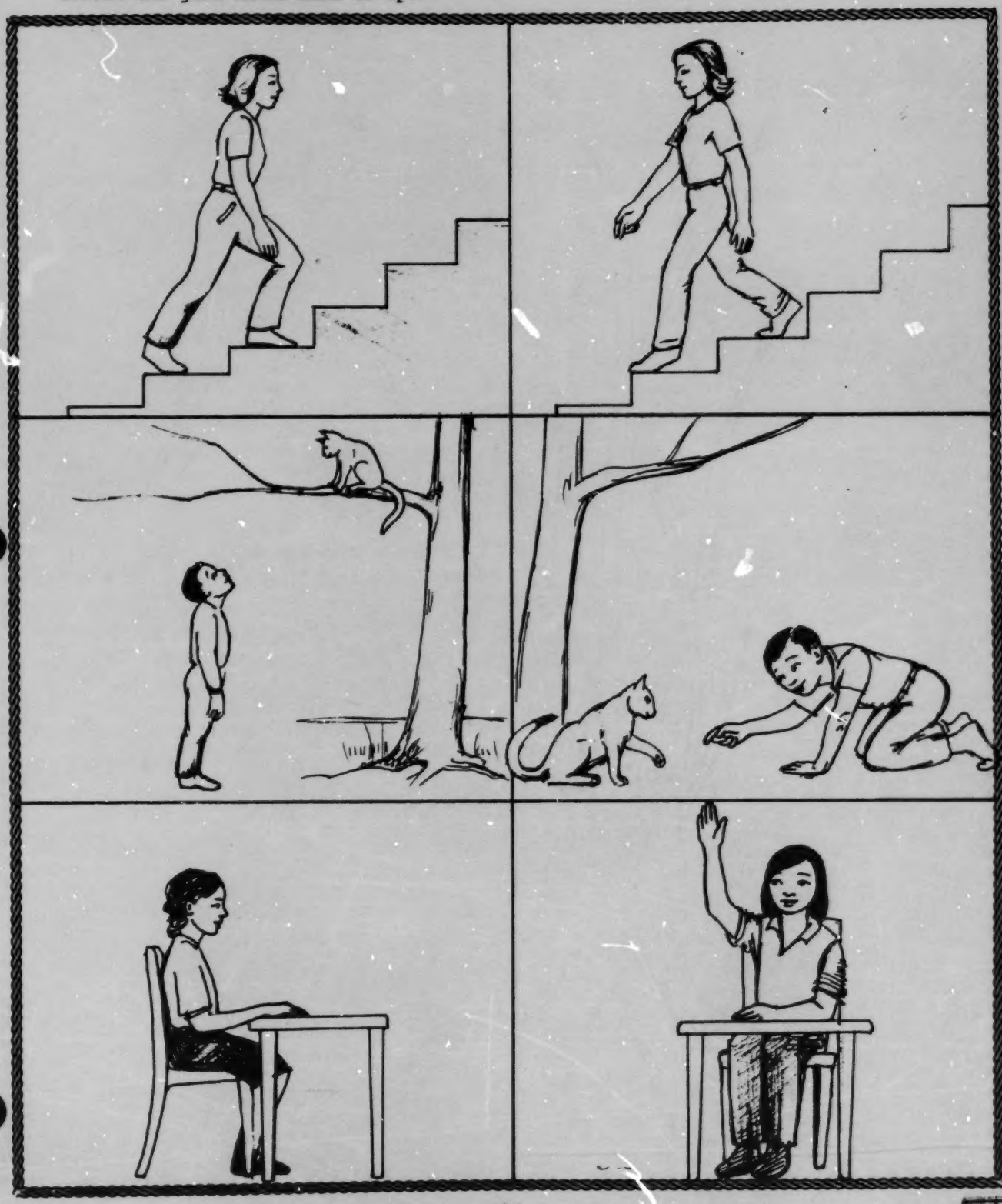
NAME: _____ CLASS: _____

Color the kite which is up in the sky.
X the kite which has fallen down.

P.O. 0.01.02.02

NAME: _____ CLASS: _____

Circle the woman walking up the stairs.
Circle the boy who is looking up at the cat.
Circle the girl whose hand is up.



P.O. 0.01.02.03

NAME: _____ CLASS: _____

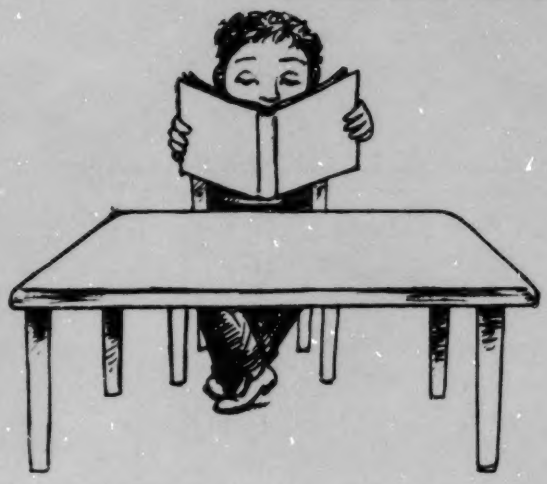
Color the plant parts that are below the ground brown.
Color the plant parts that are above the ground green (leaves) and yellow (flowers).

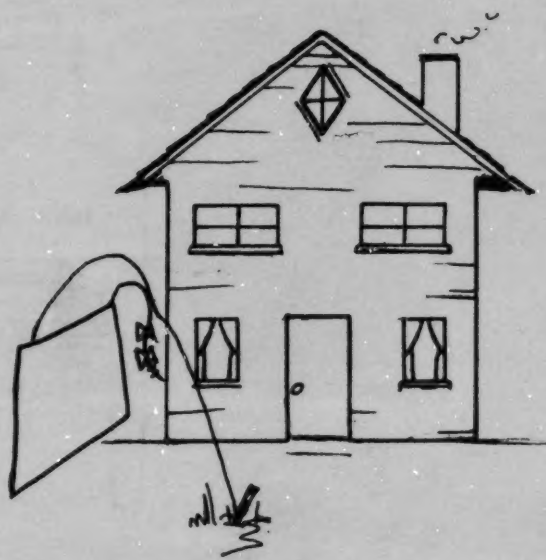
P.O. 0.01.02.03

NAME: _____ CLASS: _____

X the book that is above the table.

Color the kite that is above the roof.

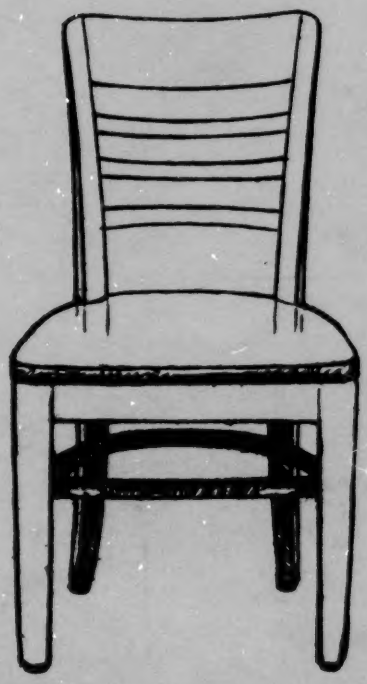




P.O. 0.01.02.03

NAME: _____ CLASS: ____

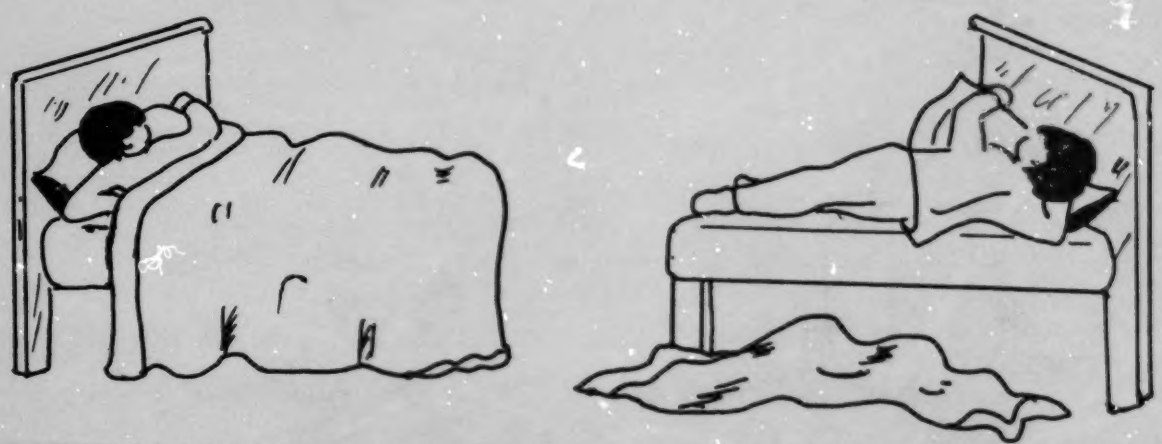
Draw a circle above the table.
Draw a circle below the chair.



P.O. 0.01.02.04

NAME: _____ CLASS: _____

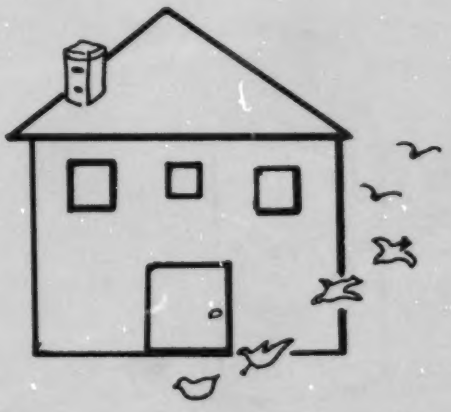
- X the bird that is on the branch.
- XX the bottle with its cover off.
- X the bed with the blanket off.

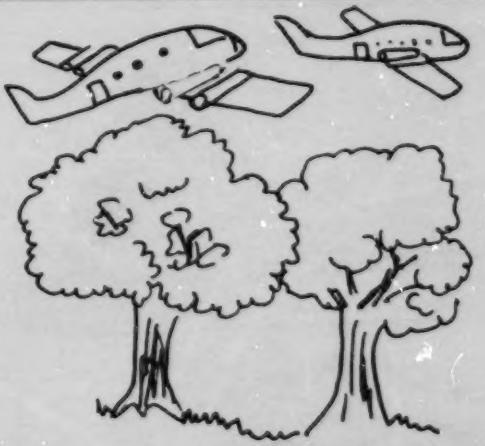


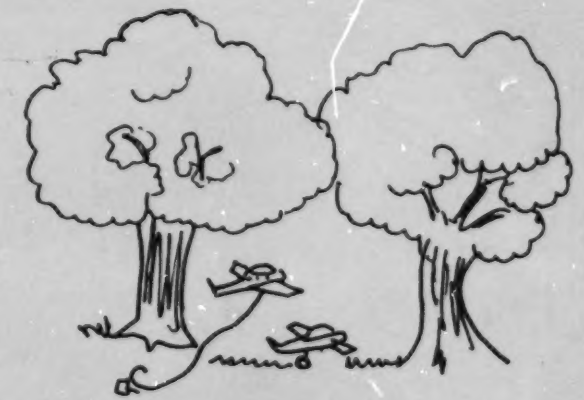
P.O. 0.01.02.05

NAME: _____ CLASS:

X the umbrella that is over the girl's head.
X the birds that are flying over the house.
X each plane that is under the trees.



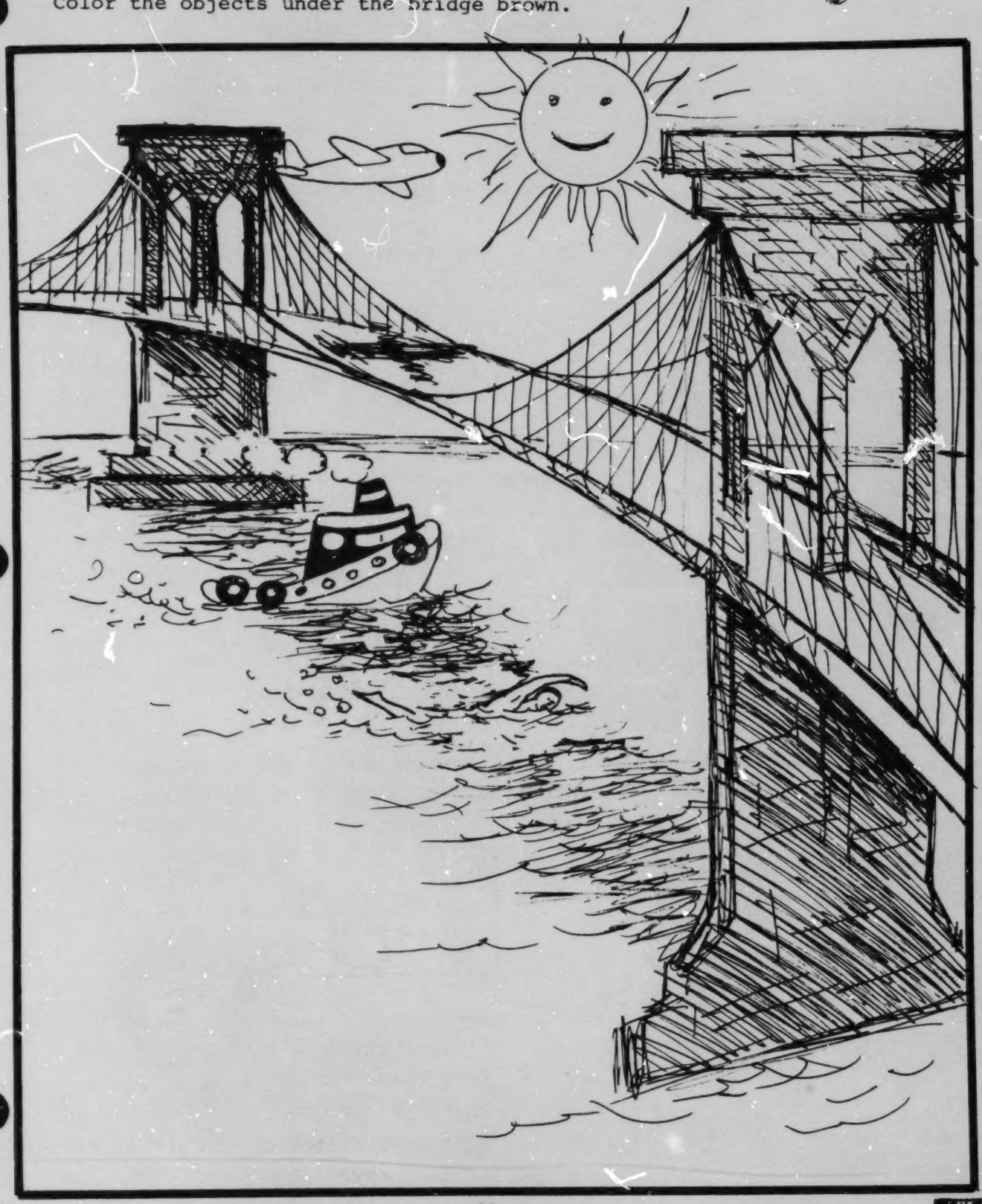




P.O. 0.01.02.05

NAME:_____ CLASS:_____

Color the objects over the bridge yellow.
Color the objects under the bridge brown.



Unit 3

0.13.01 PROBLEM SOLVING: LANGUAGE

(3 lessons)

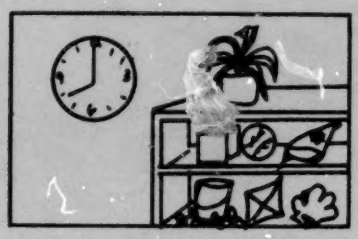
PERFORMANCE OBJECTIVES

The student will be able to...

0.13.01.01 locate and describe objects in the classroom;
e.g.,

Where is the teacher's desk?
Who is sitting behind Juan?

0.13.01.02 locate and describe objects within a picture;
e.g.,



0.13.01.03 make and explain inferences based upon information obtained from a picture.
e.g.,

Where do you think the boy/girl lives? Why?
What season of the year do you think it is? Why?
What part of the day do you think it is? Why?

0.13.01

VOCABULARY

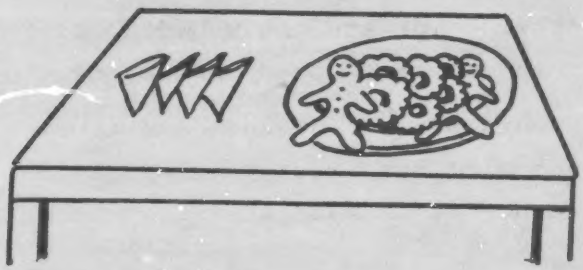
TERMS

front
behind
between
next to
over
under
above

GETTING STARTED

Distribute one disc, block and crayon to each student. Say, "We are going to play a game. You must listen carefully." Hold up the item as you say, "Place the disc on your table. Place the block next to the disc. Place the crayon next to the block." Repeat this procedure using other arrangements as well as other objects.

During snack time, distribute milk or juice to each student. Place a plate of cookies and a pile of napkins at each table. Say, "You may each take a napkin. Where should we place the napkin? Place it next to your juice/milk. Take a cookie. Where should we place the cookie? Place it on the napkin." When the students have completed eating their snack, say, "Where should we put our empty container? Where should we put our napkin?"



Repeat this type of questioning during other activity periods.

0.13.01

0.13.01.01 locate and describe objects in the classroom

STRATEGY 1: Say, "We are going to play What Am I. I will tell you about where something is located in this classroom. I will tell you three things about the place where it can be found. Then you will have to guess the object I am telling you about." e.g., It is in the back of the room. It is made of wood. It is on the top shelf.

Describe the location of an object. If after 5 guesses you have not received the correct answer, give further directions. When the correct object is located, say to that student, "Tell us something about this object."

Repeat this procedure for other objects.

STRATEGY 2: Hold up three blocks and say, "I am going to hide one of these blocks. While I am hiding the block, everyone will cover his/her eyes. One student will not hide his/her eyes so that he/she can describe the location of the block. Everyone, cover your eyes." Place the block somewhere in the classroom, e.g., under the teacher's desk. Say, "Uncover your eyes." The student who did not cover his/her eyes then describes the location of the block.

When a student guesses its location, he/she should describe the block that was hidden. e.g., It is hard. It is made of wood. It is long.

0.13.01

0.13.01.02 locate and describe objects within a picture

STRATEGY 1: Display the accompanying picture on page 3S.3. Say, "Point to the sun. Where is the sun? (Over or above the tree.) Point to the girls. What is between the girls? (a cat) Point to the boy. Where is the boy?" (Under or next to the tree.) Provide opportunities for the students to ask questions. Repeat this procedure using other pictures.

STRATEGY 2: Select a picture book with large pictures of a variety of people and/or objects. Ask the students to locate objects within the picture and describe them. Describe the location of an object and ask students to name the object.

0.13.01.03 make and explain inferences based upon information obtained from a picture

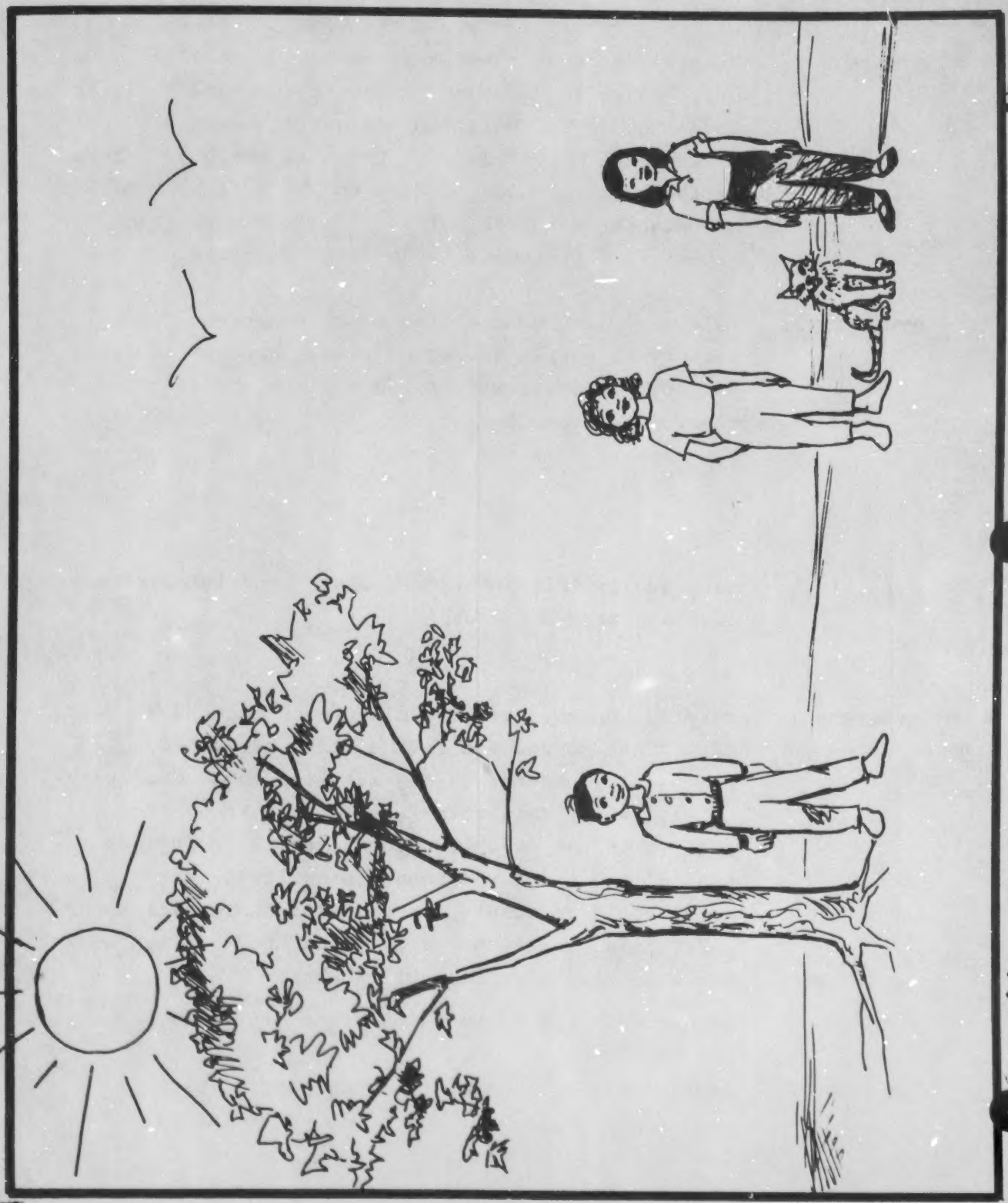
STRATEGY 1: Display the accompanying picture on page 3S.4. Say, "What do you see in the picture? (a bed, a window, a youngster in pajamas, the moon) What time of day is it? (nighttime) How do you know? (The moon is in the sky. The youngster is in pajamas.) What do you think the youngster will do next?" (Go to sleep.) Formulate other questions requiring inferential thinking. Provide an opportunity for the students to do the questioning.

Repeat this procedure using other pictures.

STRATEGY 2: Adapt strategy 1 using the accompanying picture on page 3S.5. e.g., What season do you think it is? Why do you think it is winter?

P.O. ~~0.13.01.02~~

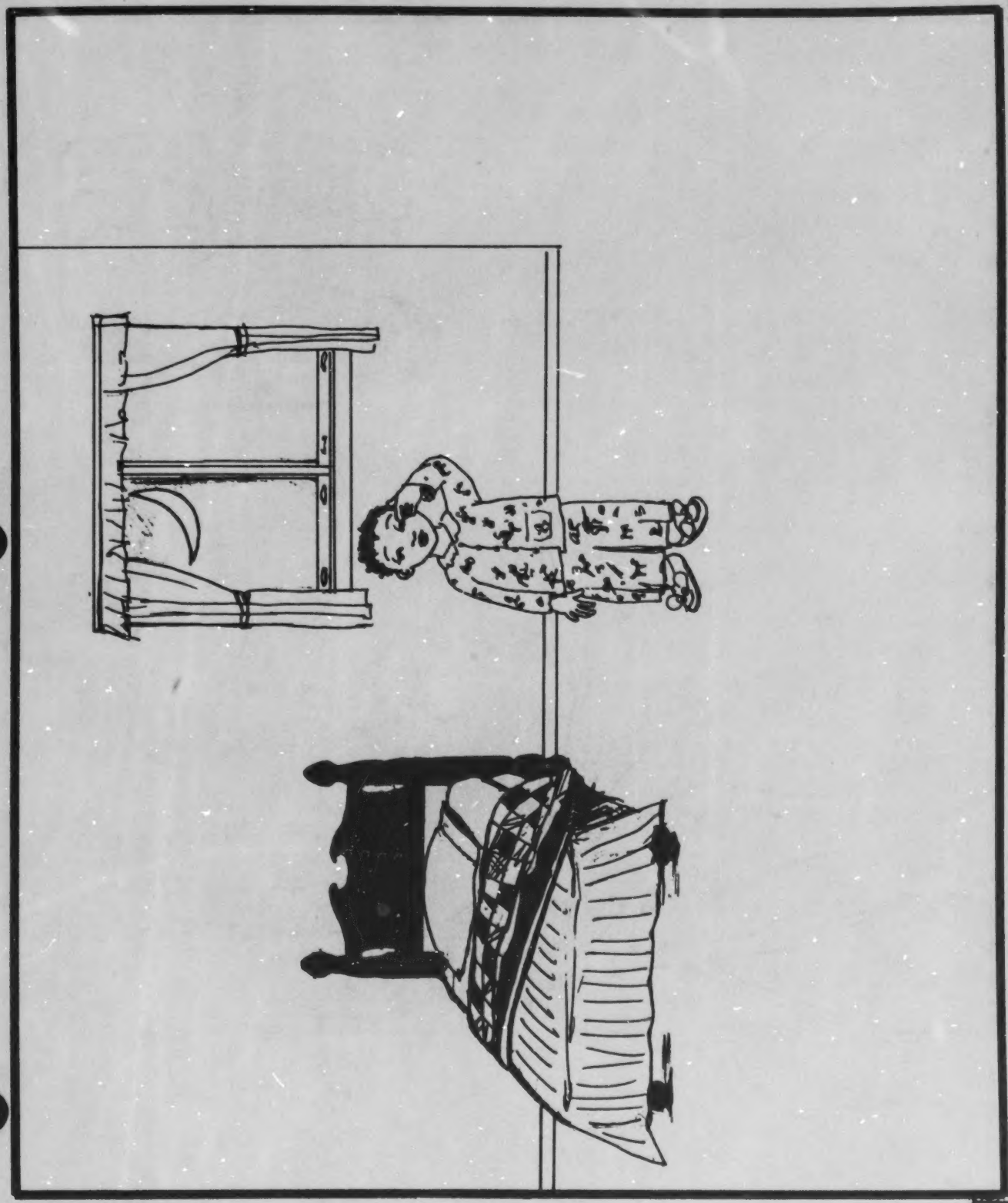
Display this page for Strategy 1.



P.O. 0.13.01.03

Display this page for Strategy 1.

47



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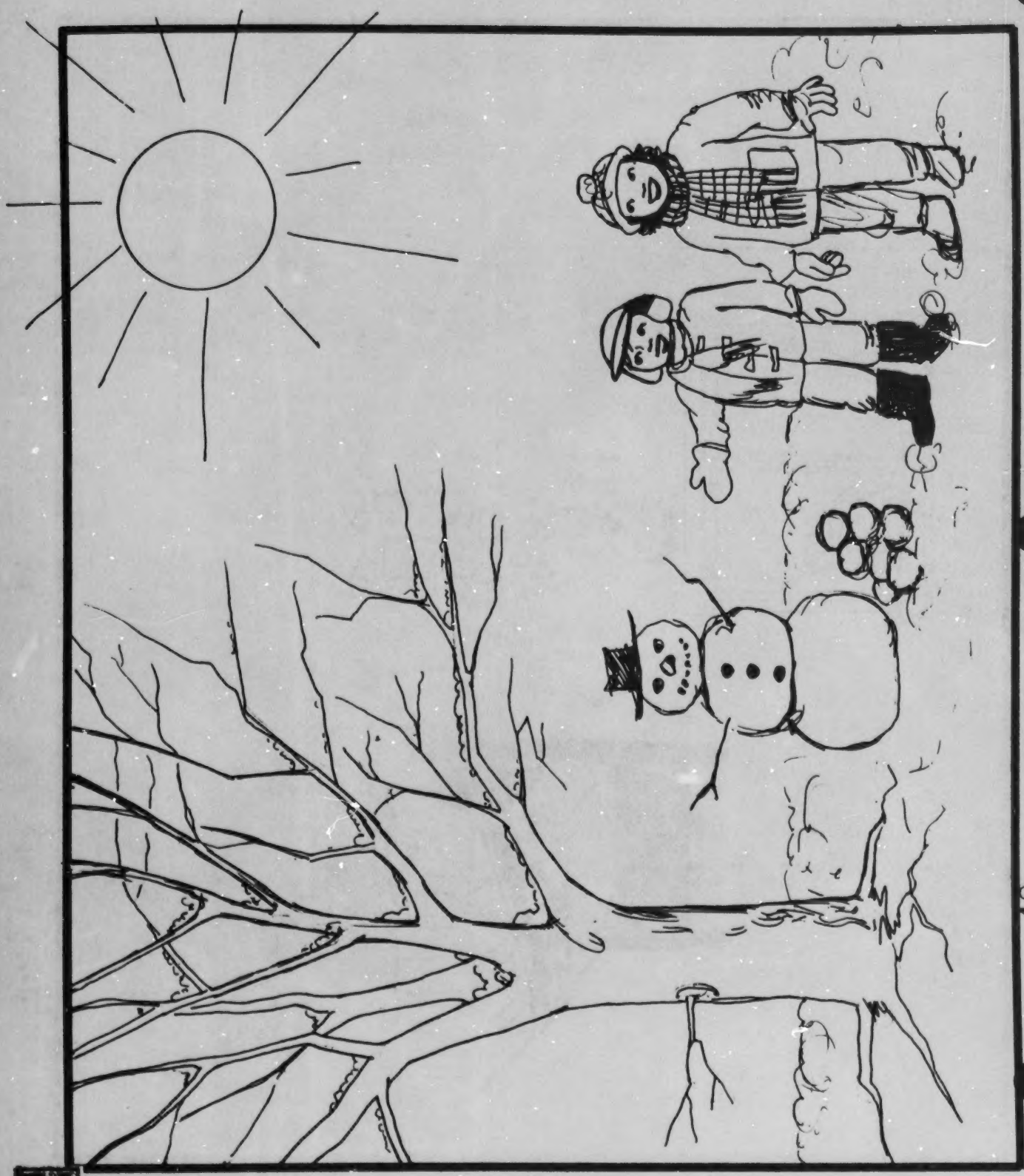
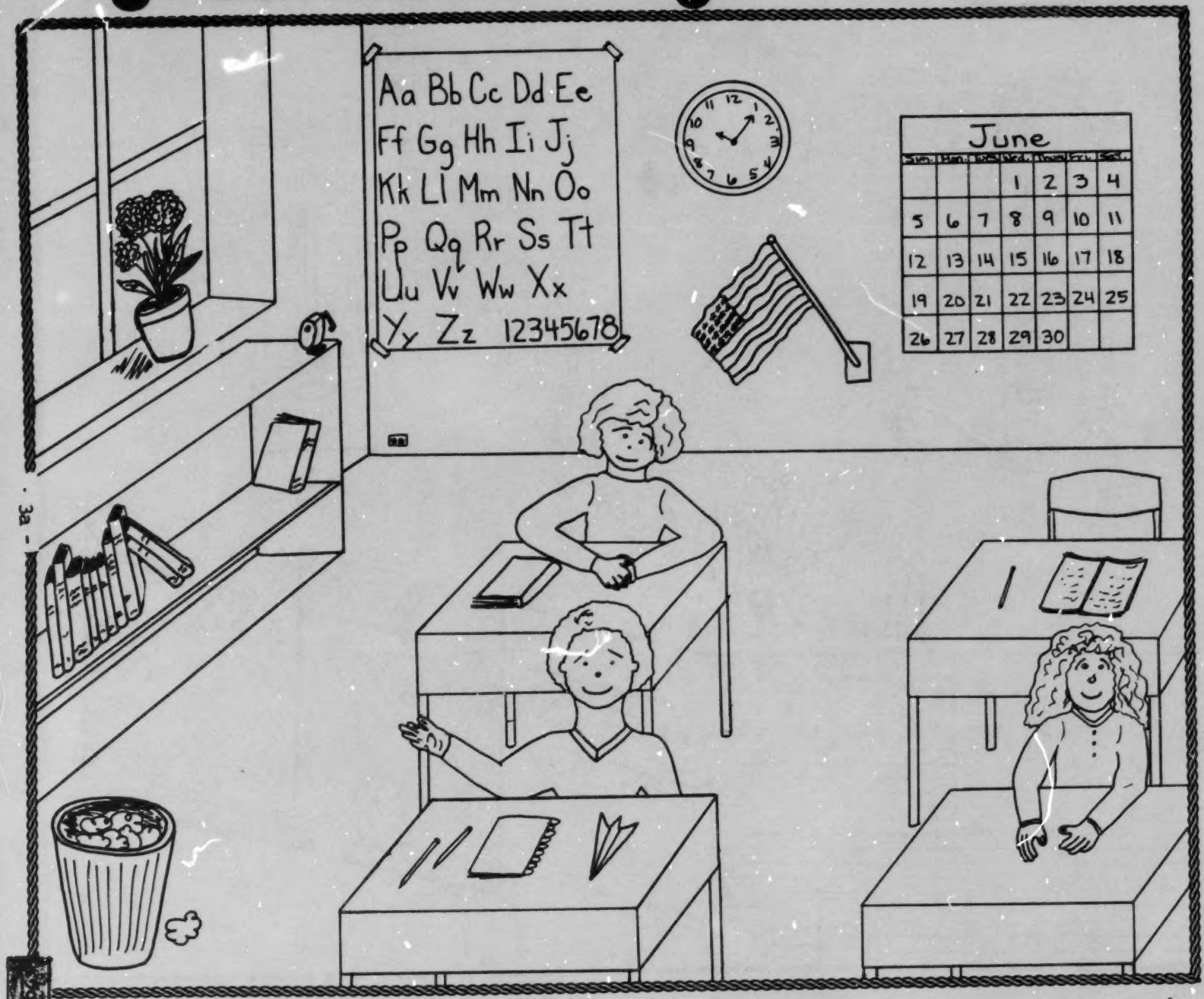
P.O. 0.13.01.03

Display this page for Strategy 2.





F.O. 0.13.01.01

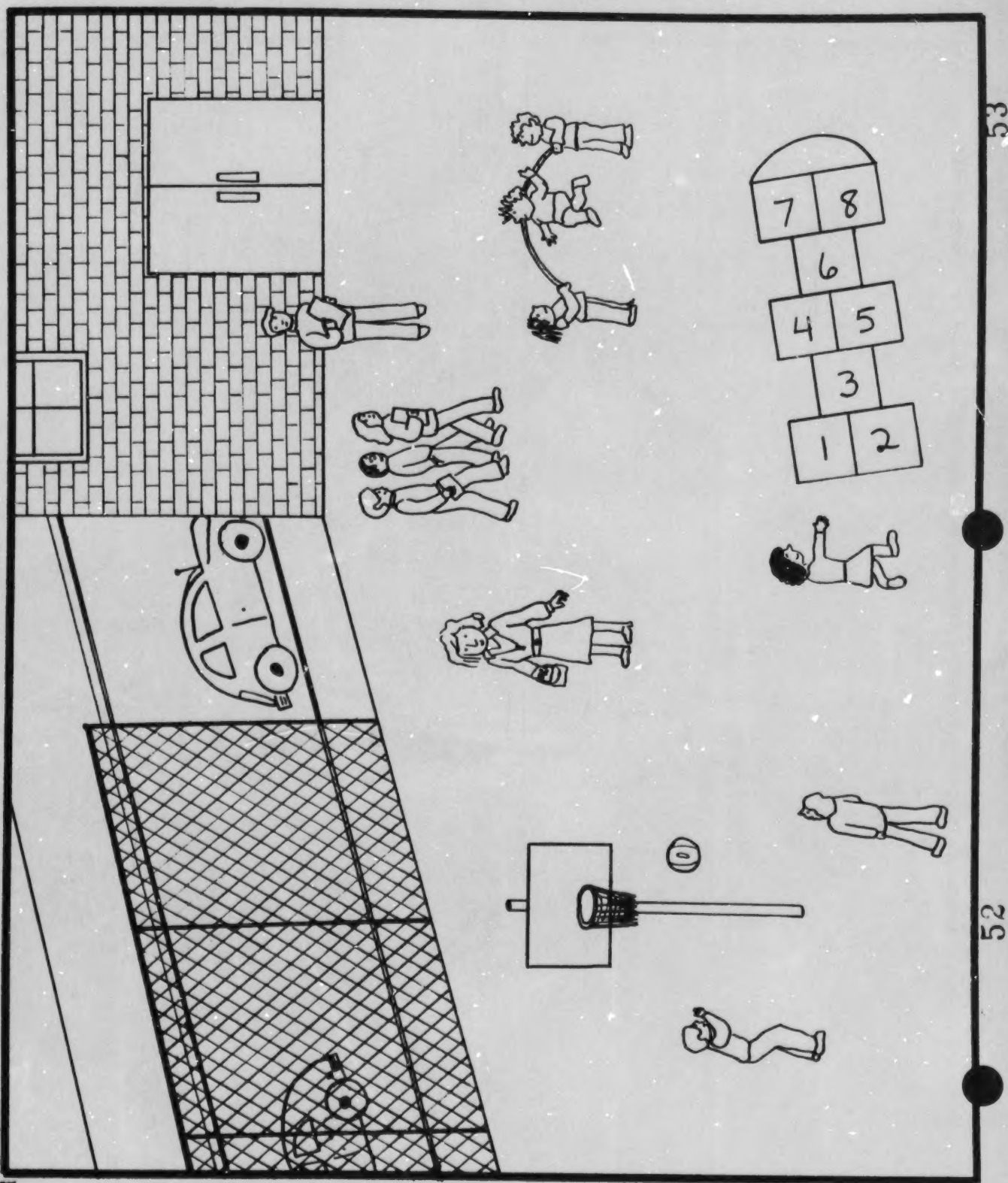
NAME: _____ CLASS: _____

Circle the objects that I tell you about.
Ask the students to locate and describe objects.

P.O. 0.13.01.01

NAME: _____ CLASS: _____

Circle the people or objects that I tell you about.
Ask the students to locate and describe objects.

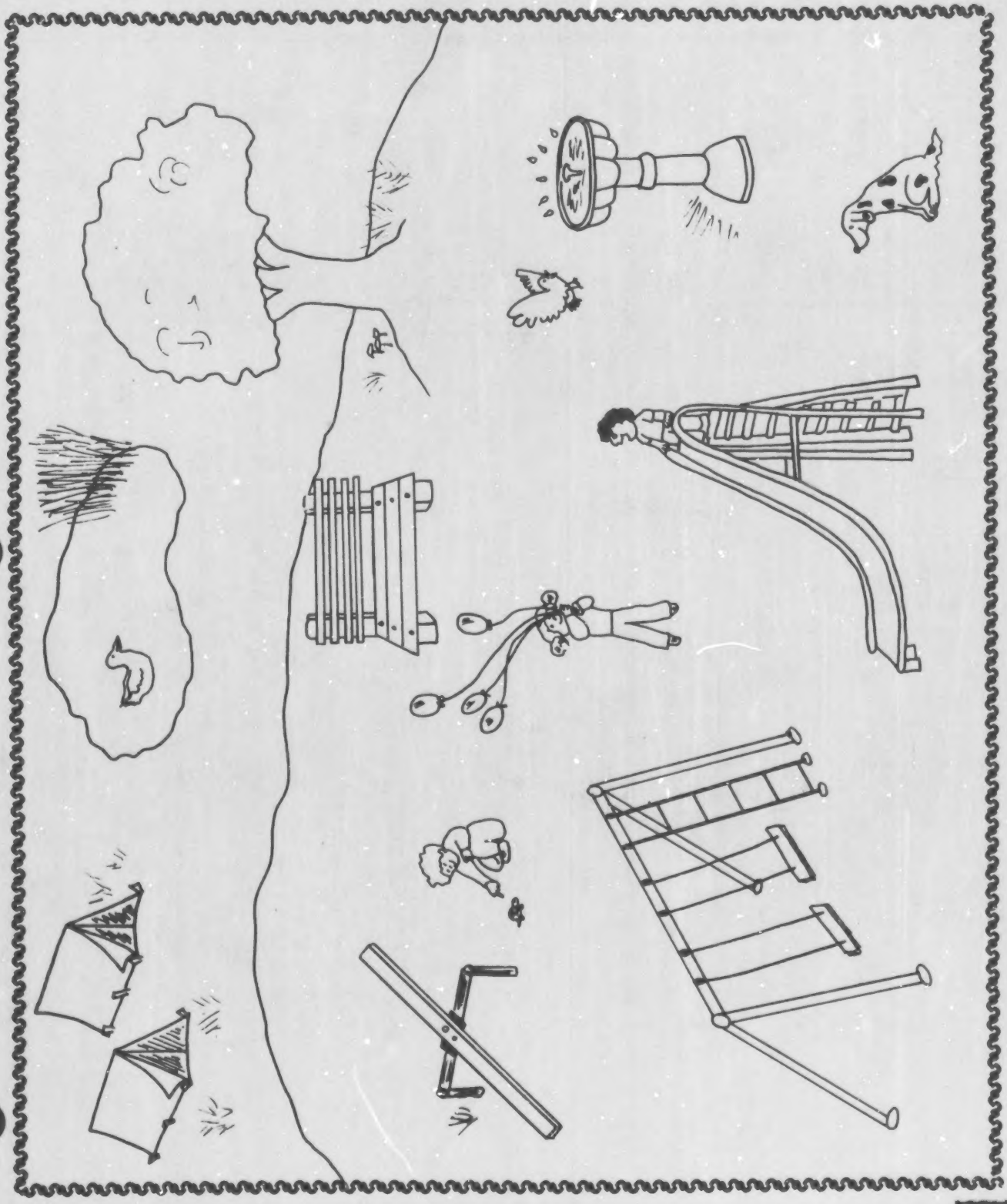


P.O. 0.13.01.02

NAME: _____ CLASS: _____

55

Circle the people or objects that I tell you about.
Ask the students to locate and describe objects.

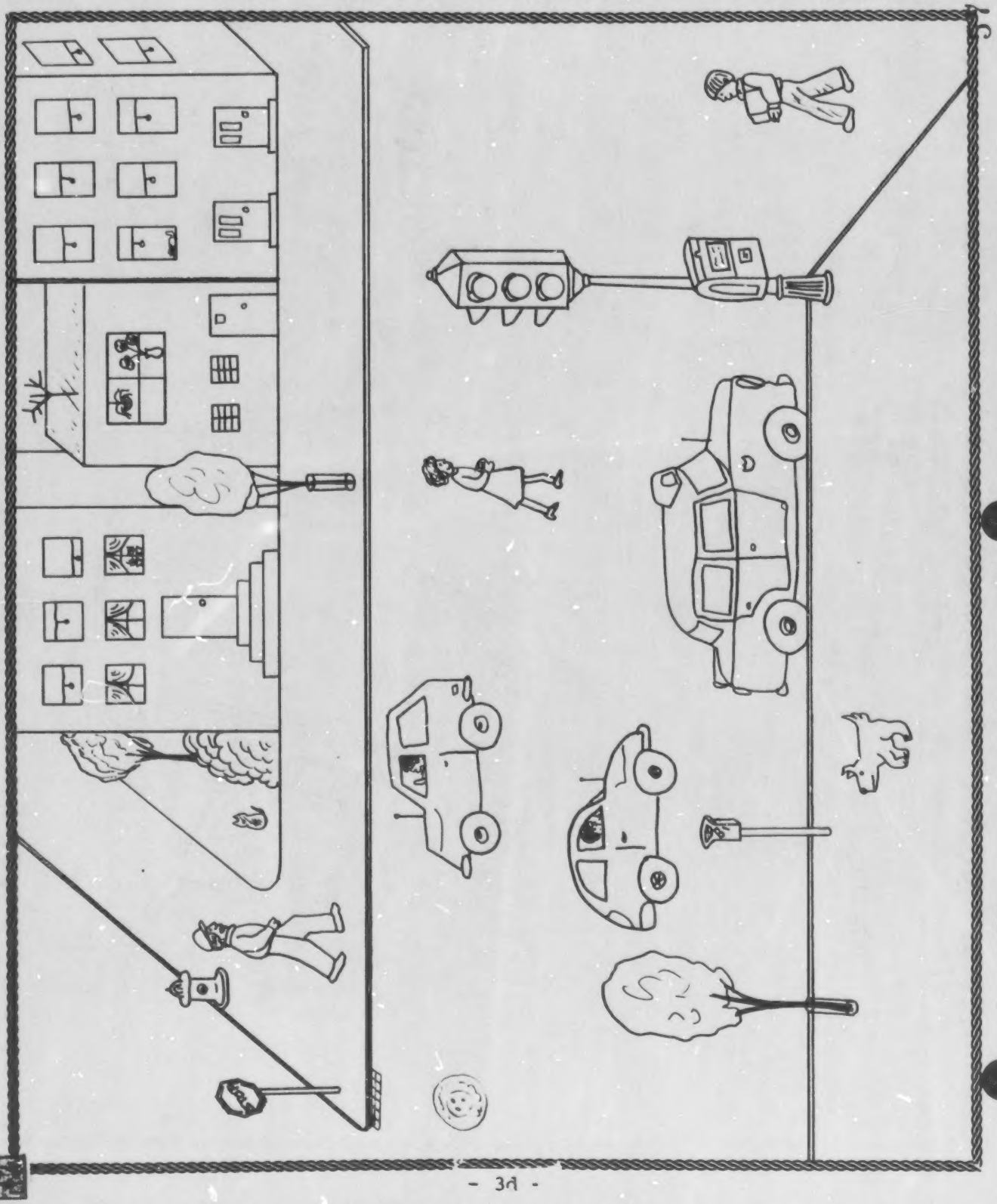


54

P.O. 0.13.01.02

NAME: _____ CLASS: _____

Circle the people or objects that I tell you about.
Ask the students to locate and describe objects.

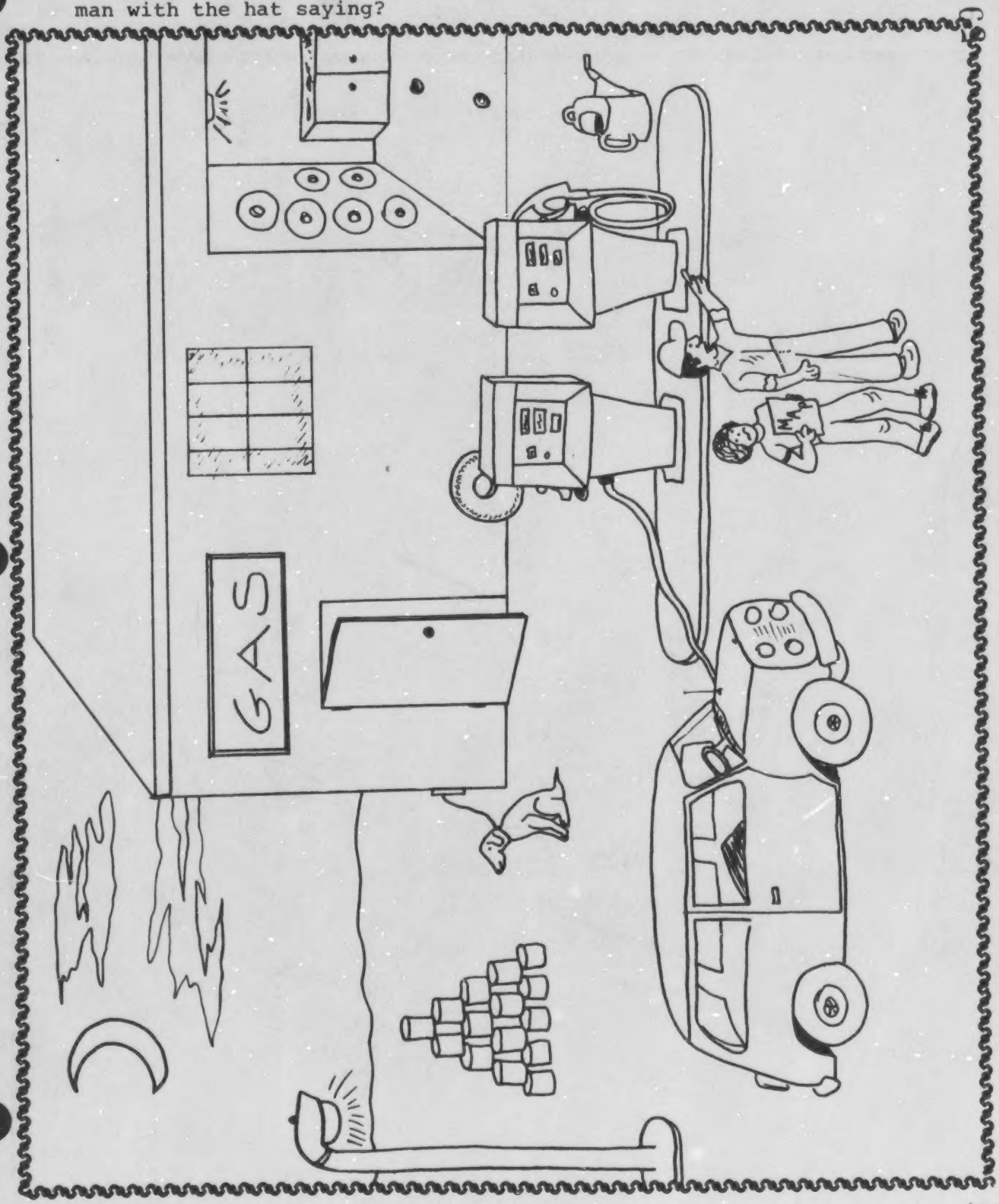


56

P.O. 0.13.01.03

NAME:_____ CLASS:_____

Ask questions which will lead youngsters to make inferences, e.g., What time of the day is it? Why did they have to stop? What is the man with the hat saying?

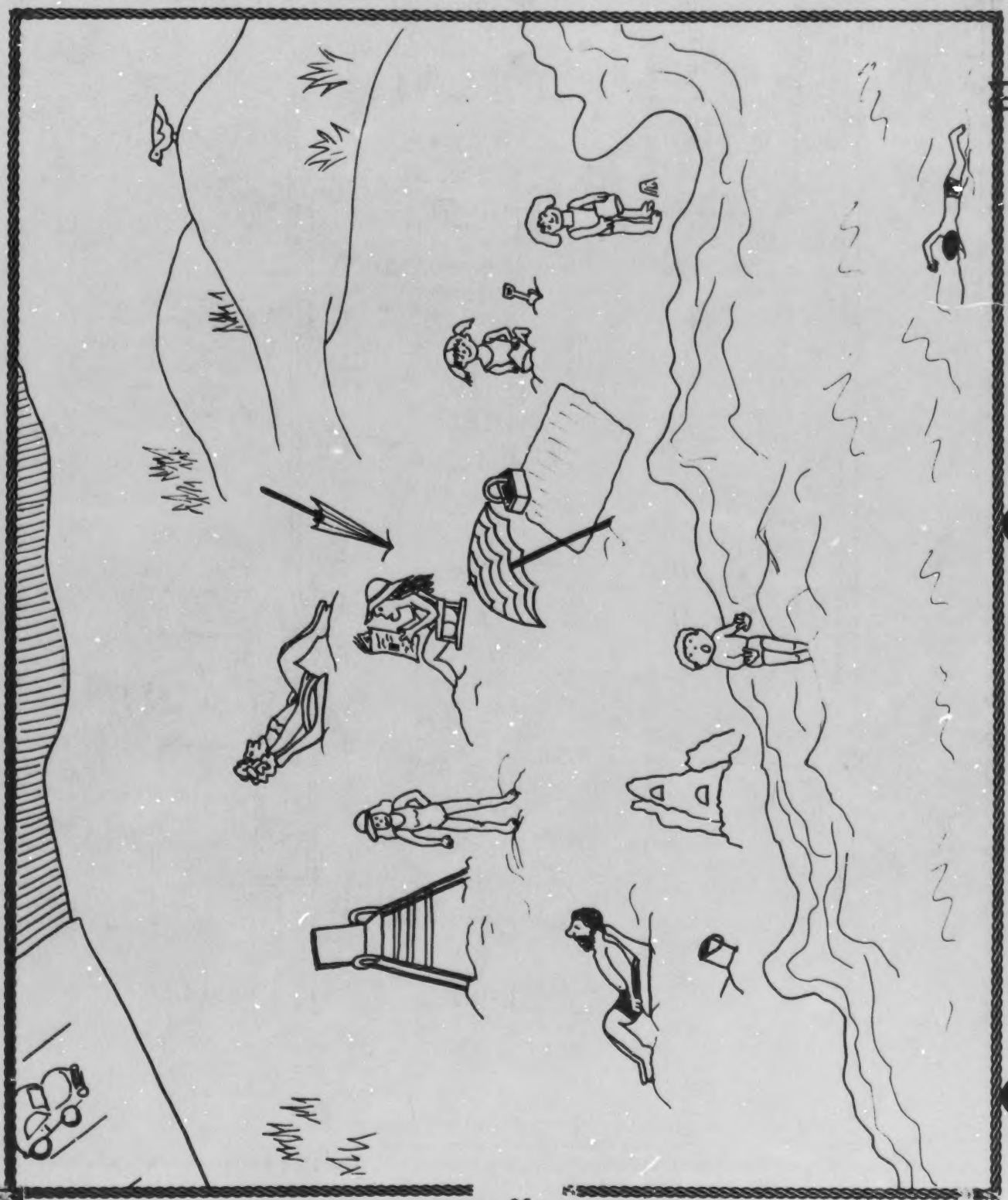


58

P.O. 0.13.01.03

NAME: _____ CLASS: _____

Ask questions which lead students to make inferences, e.g. What is the time of day ? What is the season ? How did the people get to the beach ?



0.13.02 PROBLEM SOLVING: ONE-TO-ONE CORRESPONDENCE

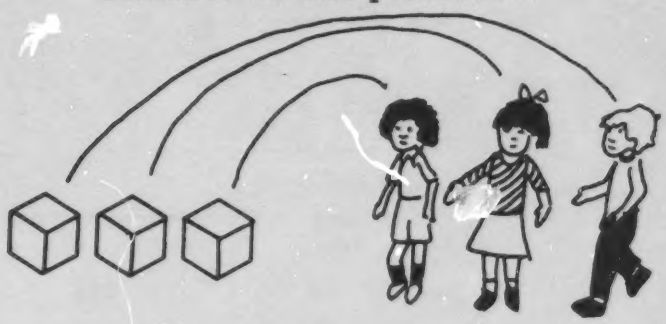
(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.13.02.01 match pictures and objects;
e.g.,

Use cubes to match the number of students in the picture.



one-to-one correspondence

0.13.02.02 solve simple problems using one-to-one correspondence.
e.g.,

How can we decide which student has more chips without counting?

0.13.02

VOCABULARY

TERMS

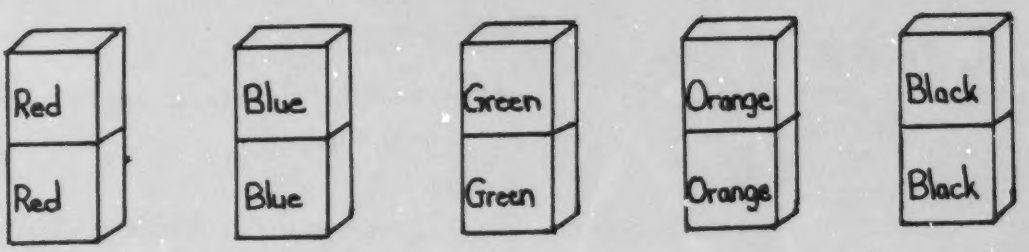
match

GETTING STARTED

Distribute a picture card showing 1 through 4 simple objects to each pupil. Say, "Everyone will find a classmate with the same picture card." Ask one pupil to come to the front of the room. Say, "Who has the same card as Adam?" Repeat this procedure until all of the pupils are paired.

e.g.,

Distribute 10 blocks to each pupil - two red, two blue, two green, two orange and two black. Say, "Match the two blocks of the same color." If possible, students should describe the color groupings.



0.13.02

0.13.02.01 **match pictures and objects**

STRATEGY 1: Distribute two sets of animal or people (1-5) pictures to each student. Say, "Find two picture cards which match." Display the pair so that the pictures are in counting order from one through five.

STRATEGY 2: Prepare and distribute a set of cards picturing 1-5 locks and 15 key pictures to each student. Say, "Unlock these locks by placing a key on each lock." e.g.,

0.13.02.02 **solve simple problems using one-to-one correspondence**

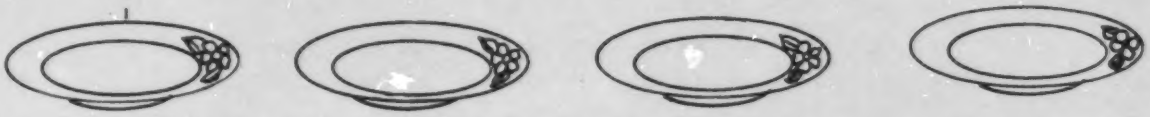
STRATEGY 1: Ask four boys and four girls to stand. Say, "How can we tell if each girl can have a boy as a partner? Girls, please stand in front of the boys. Boys, please get a chair for your partner." After the boys have gotten the chairs, say, "How can we tell if we have enough chairs for the girls? Girls, please sit in a chair. Do we have enough chairs for the girls?"

STRATEGY 2: Prepare a paper rabbit, a paper carrot, a large piece of construction paper and paste for each student. Distribute a paper rabbit to each student. Say, "Take a paper carrot. How can we tell if we have enough carrots for each student to get one? Color your rabbit and paste it onto large construction paper." At each phase, say, "How can we tell if we have enough construction paper? ...carrots? Color and paste your carrot in the rabbit's mouth."

P.S. 0.13.02.01

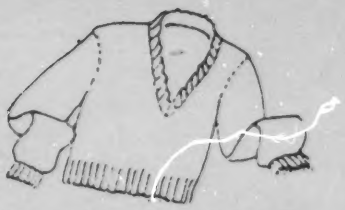
NAME: _____ CLASS: ____

Match the cups and saucers.

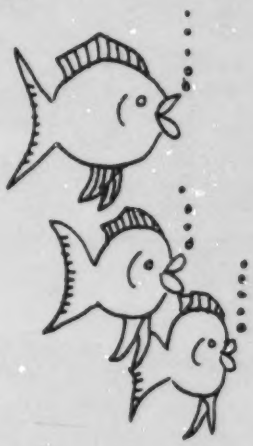


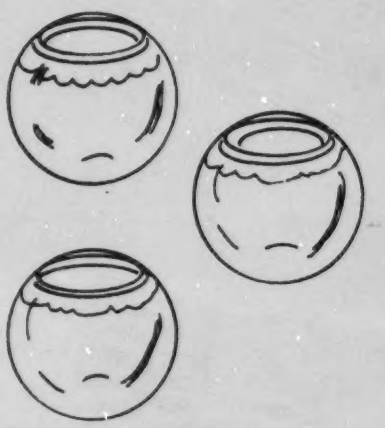
P.O. 0.13.02.02

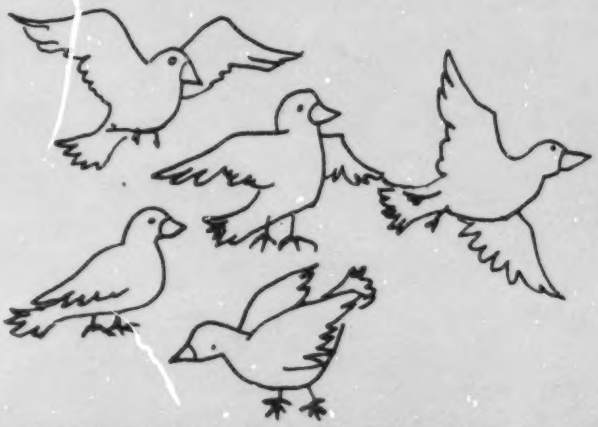
NAME: _____ CLASS: ____



Match the groups.



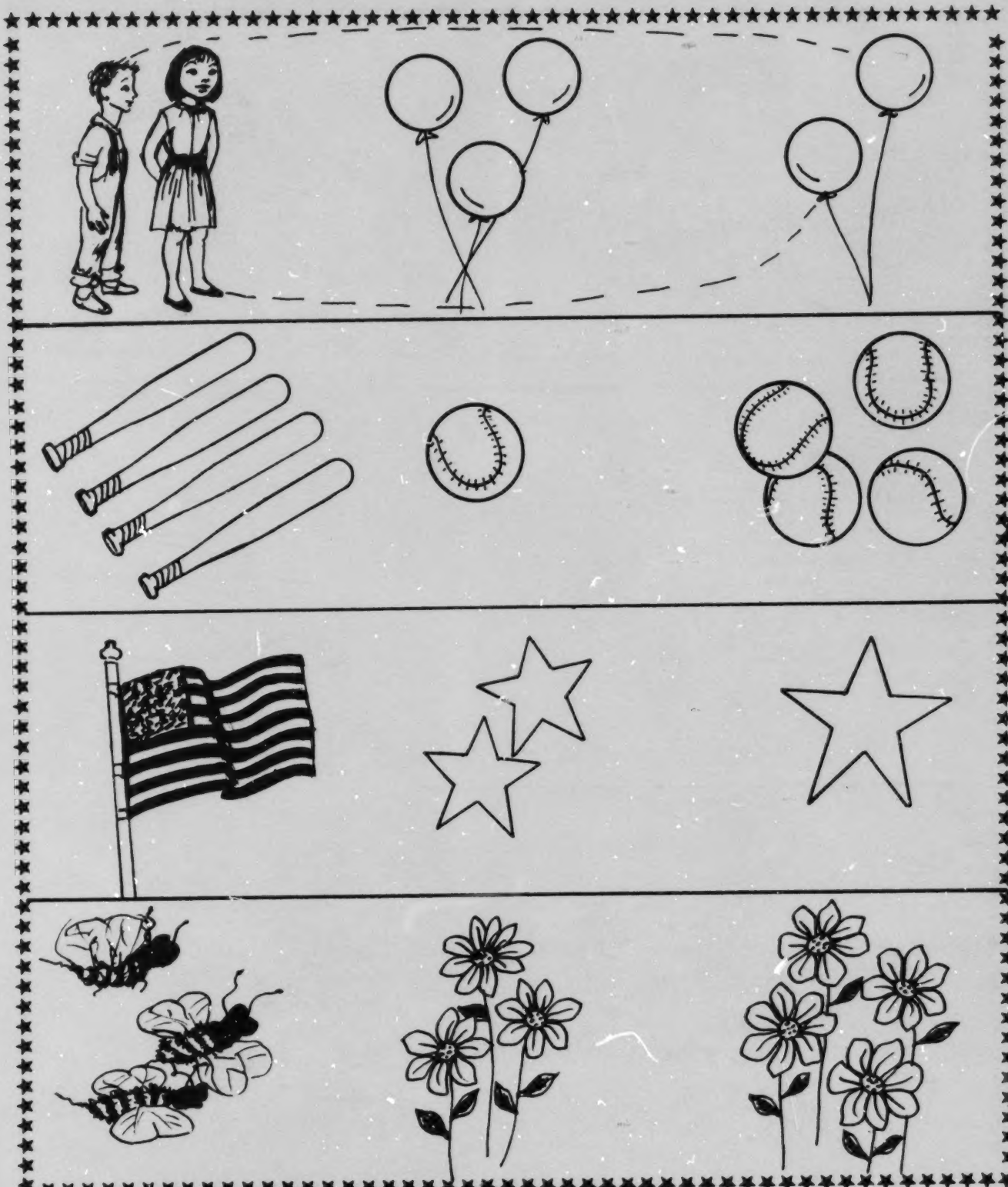




P.O. 0.13.02.02

NAME: _____ CLASS: _____

Draw a line to the matching group.



Unit 5

0.01.03 CLASSIFICATION BY ATTRIBUTES

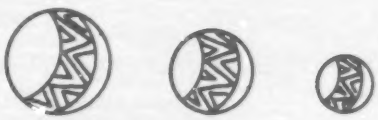
(4 lessons/ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.03.01 order sets of objects from smallest to largest;
e.g.,

0.01.03.02 order sets of objects from largest to smallest;
e.g.,

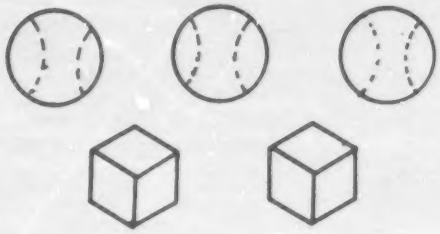


0.01.03.03 distinguish likenesses and differences;
e.g., Sort children's clothing according to sex, color, season, size...

0.01.03.04 distinguish between same and different;
e.g.,

0.01.03.05 solve oral word problems using skills learned in this module.

e.g., Group playthings according to size, color, shape, thickness...



0.01.03

VOCABULARY

TERMS

small
smaller
smallest
large
larger
largest
big
little
middle

GETTING STARTED

Read the story of "The Three Billy Goats Gruff." Place cut-outs of billy goats in three sizes on a flannel board. Ask students to identify the smallest, middle and largest goat. Say, "Which goat crossed the bridge first? Why did the Troll allow the smallest Billy goat to cross the bridge?" Ask the same questions about the middle Billy Goat. Say, "Why do you think the largest Billy Goat Gruff was able to cross the bridge?"

Repeat this procedure with other stories in which size comparisons are possible. e.g., "The Three Bears".

Distribute several pairs of large and small objects in a bag and a picture of a large ball and another of a small ball to each pair of students. Place the pictures on opposite sides of the table identifying one ball as big and the other as little. Say, "Empty the things in the bag onto the table. Find the pencils. Place the big pencil next to the picture of the big ball and the little pencil next to the picture of the little ball." Demonstrate matching of the pairs and then distinguishing the size difference.

Repeat this procedure for the other pairs of objects.

0.01.03

0.01.03.01 order sets of objects from smallest to largest

STRATEGY 1: Prepare pictures of animals of various sizes to scale in order to play a size game. Display animal pictures as you say, "I'm thinking of a mouse, a cat and a lion. Which animal is the smallest? Which animal is the largest?" Repeat this procedure using several sets of related objects, e.g., bicycle, car, truck.

STRATEGY 2: Prepare and display groups of nesting materials or related plane geometric figures, e.g., circles, squares and triangles. Say, "We will arrange each group by starting with the smallest object, then the next largest and the largest object." Demonstrate using one of the groups. Ask the students to arrange another group from smallest to largest. Repeat this procedure using other groups of materials.

Note: This activity may be repeated as an introduction to Unit 17 Shapes Around Us.

0.01.03.02 order sets of objects from largest to smallest

STRATEGY 1: Display three cereal boxes of varying sizes on the table. Ask a student to identify the largest box and then place this largest box on another table. Continue this procedure for the next size box and the smallest box. Say, "The three boxes are now in a row from largest to smallest." Scramble the order of these boxes and ask various students to order them from largest to smallest.

0.01.03

STRATEGY 2: At the block corner, say, "Build a large tower using blocks. This is a large tower. Build a smaller tower than the large tower. This tower is smaller. Build a smaller tower than the one you just built. This tower is the smallest of all." Ask each student to identify his/her largest and smallest towers.

0.01.03.03 distinguish likenesses and differences

STRATEGY 1: Prepare three trays or shoe boxes labeled with pictures of objects made of metal on one tray, objects made of plastic on another tray and objects made of wood on the last tray. Prepare and display many pictures and/or simple objects which can be sorted into one of these categories. Say, "Objects can be made from many materials. Some are made from metal, some from plastic and some from wood." Demonstrate placing an object in each category in the proper tray. Ask the students to continue sorting the objects and/or pictures. When the task has been completed, ask the students to explain the placement of each object/picture.

STRATEGY 2: Prepare three trays or shoe boxes labeled with pictures of the bedroom, kitchen and living room. One picture should be on each tray. Mount pictures of furniture found in each of these rooms on oaktag. Pictures should be displayed randomly:

Bedroom	Kitchen	Living Room
bed	refrigerator	sofa
chest of drawers	sink	piano
framed mirror	table and chairs	low table
bunk bed	stove	club chair

0.01.03

0.01.03.03

STRATEGY 2: Demonstrate placing a picture of furniture from each room in the proper tray. Ask the students to continue sorting the furniture pictures. When the task has been completed, ask the students to explain the placement of each picture.

0.01.03.04 **distinguish between same and different**

STRATEGY 1: While at the block corner, say, "Let's move all the blocks that are the same in size or color, as the block I am holding, to the window side of the room. Move the rest of the blocks to the opposite side of the room. How are these blocks by the window the same? How are the other blocks different?"

STRATEGY 2: Distribute a set of colored rods to each student. Say, "Sort the rods by placing all of the orange rods side by side to make a 'floor'. (The rods should be placed one rod wide and/or high.) How are these rods the same?" (They are the same color, size and shape.)

Repeat this procedure using the brown rods. The rods should be placed one rod wide and/or high. Say, "How is an orange floor different from a brown floor?" (The floors are different in color and size.)

0.01.03

0.01.03.05 **solve oral word problems using skills learned in this module**

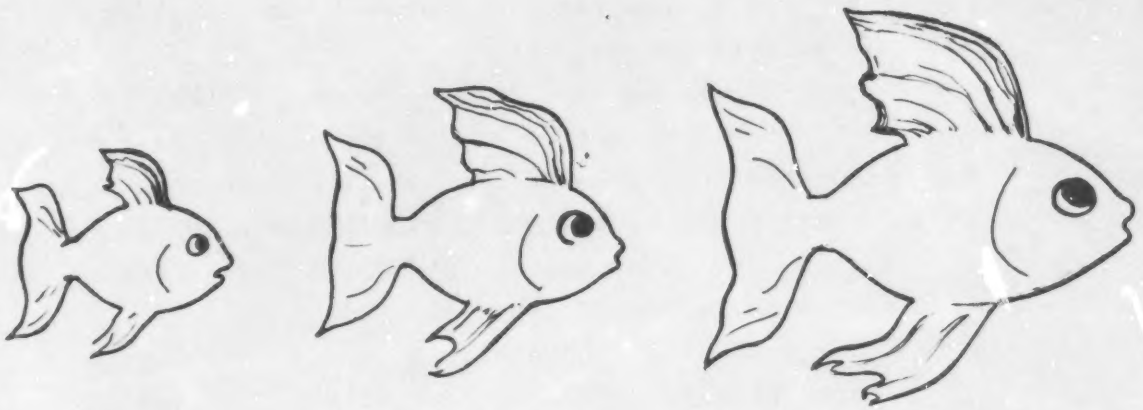
STRATEGY 1: During cleanup time, select various playthings that the students have been using. e.g., Point to a long block and say, "Where does this block belong? Why should we put it on the top shelf?" (It is long and rectangular like the blocks on the top shelf.) Distribute other playthings to pairs of students. Instruct one student to ask, "Where does this toy belong?" Another student will tell him/her where it belongs, grouping the playthings according to certain characteristics, e.g., size, color, shape.

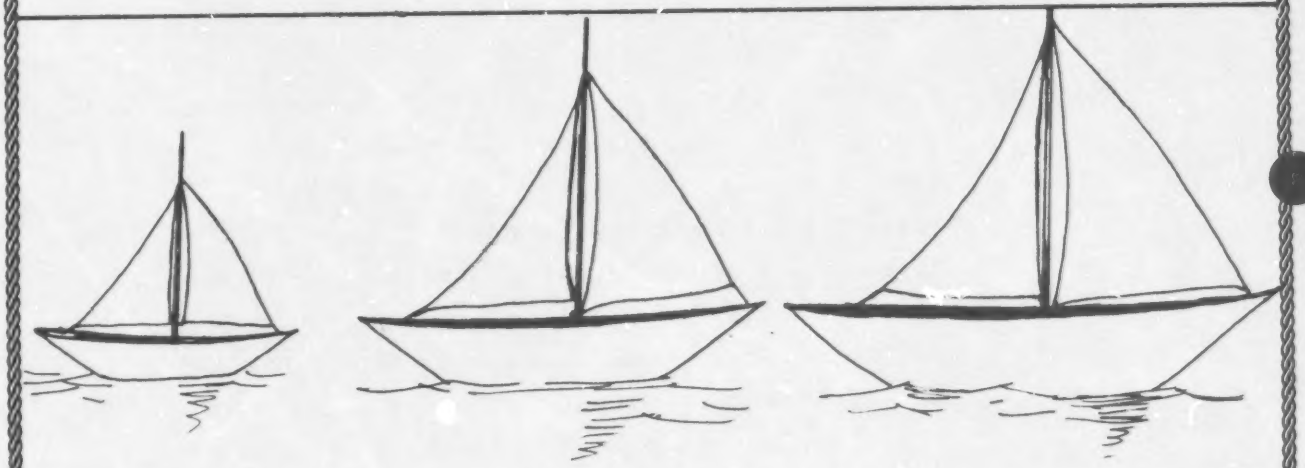
STRATEGY 2: Read the story of Goldilocks and The Three Bears. Say, "Which bear was the Papa Bear? (The biggest bear.) ...the Mama Bear? ...the Baby Bear? Say, "Draw bowls, chairs and beds for each bear." Display one of the drawings and say, "How can you tell that this bowl belongs to the Baby Bear?" (It is the smallest bowl.) Repeat this procedure using other student drawings. Students should understand that the largest objects belong to the Papa Bear, the middle size to the Mama Bear, and the smallest to the Baby Bear.

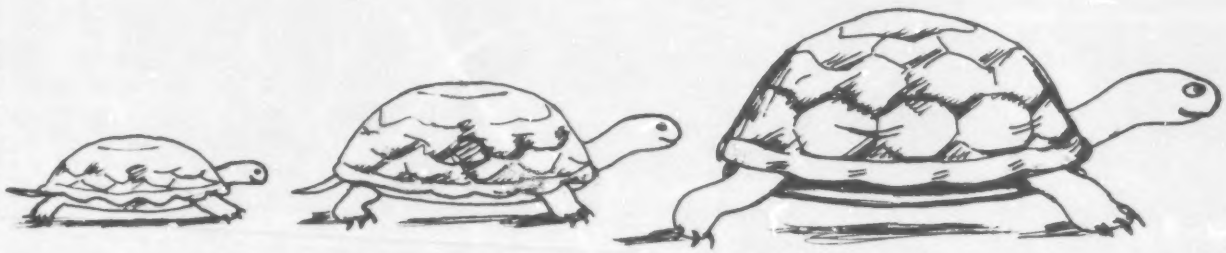
P.O. 0.01.03.01

NAME: _____ CLASS: _____

Circle the smallest object.
X the largest object.

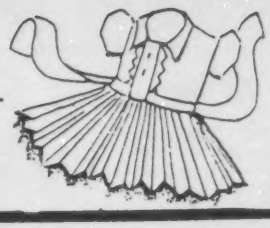




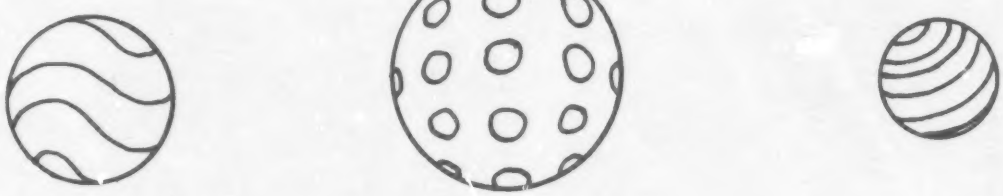


P.O. 0.01.03.01

NAME: _____ CLASS: _____



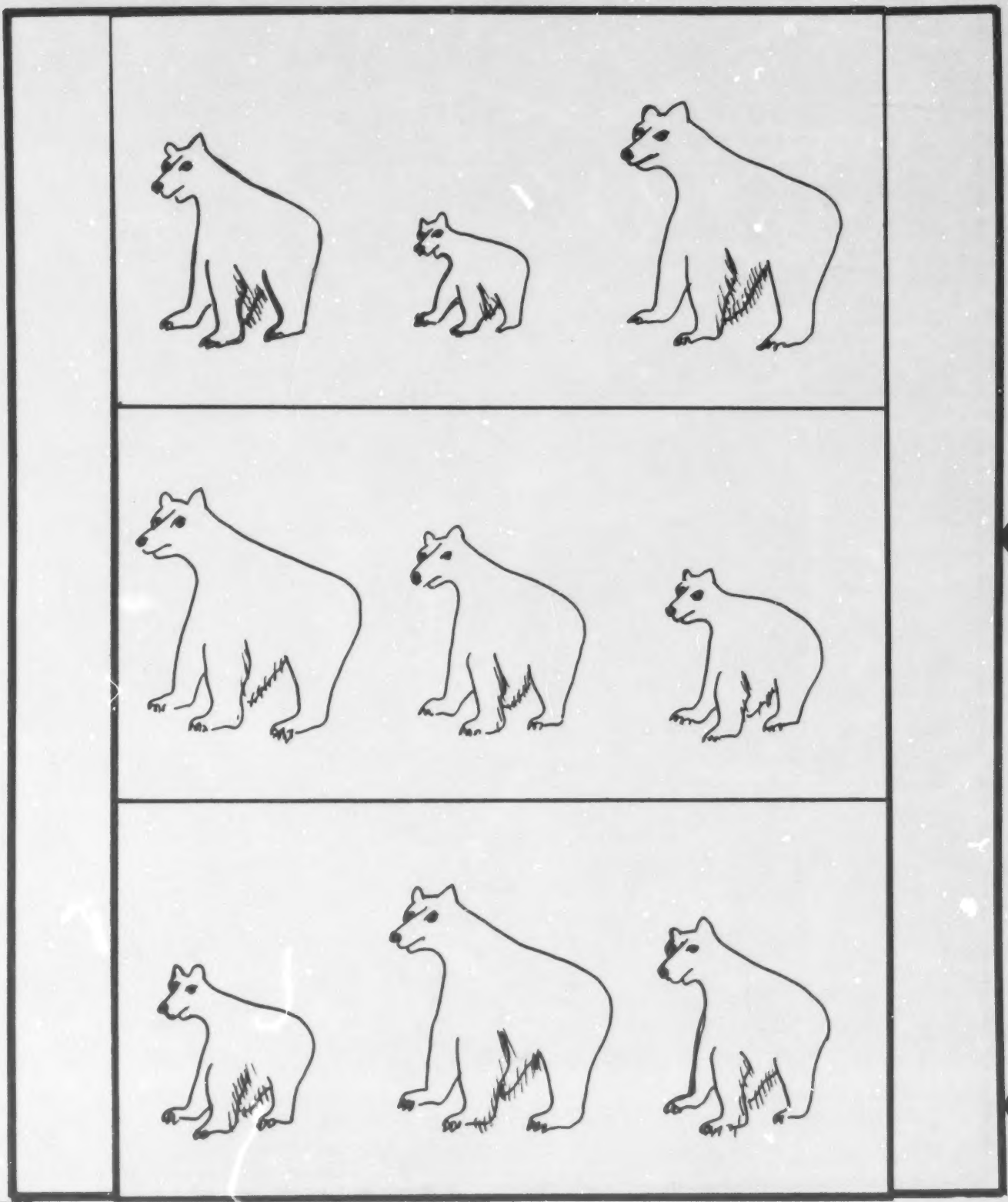
Color the row of balls which are in order from smallest to largest.



P.O. 0.01.03.02

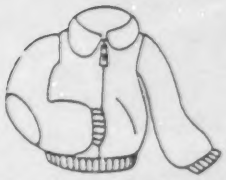
NAME:_____ CLASS:_____

Color the row of bears which is in order from largest to smallest.

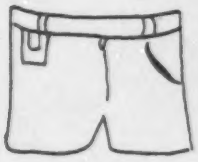


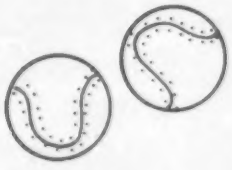
P.O. 0.01.03.03

NAME: _____ CLASS: _____



Color things used on a rainy day.

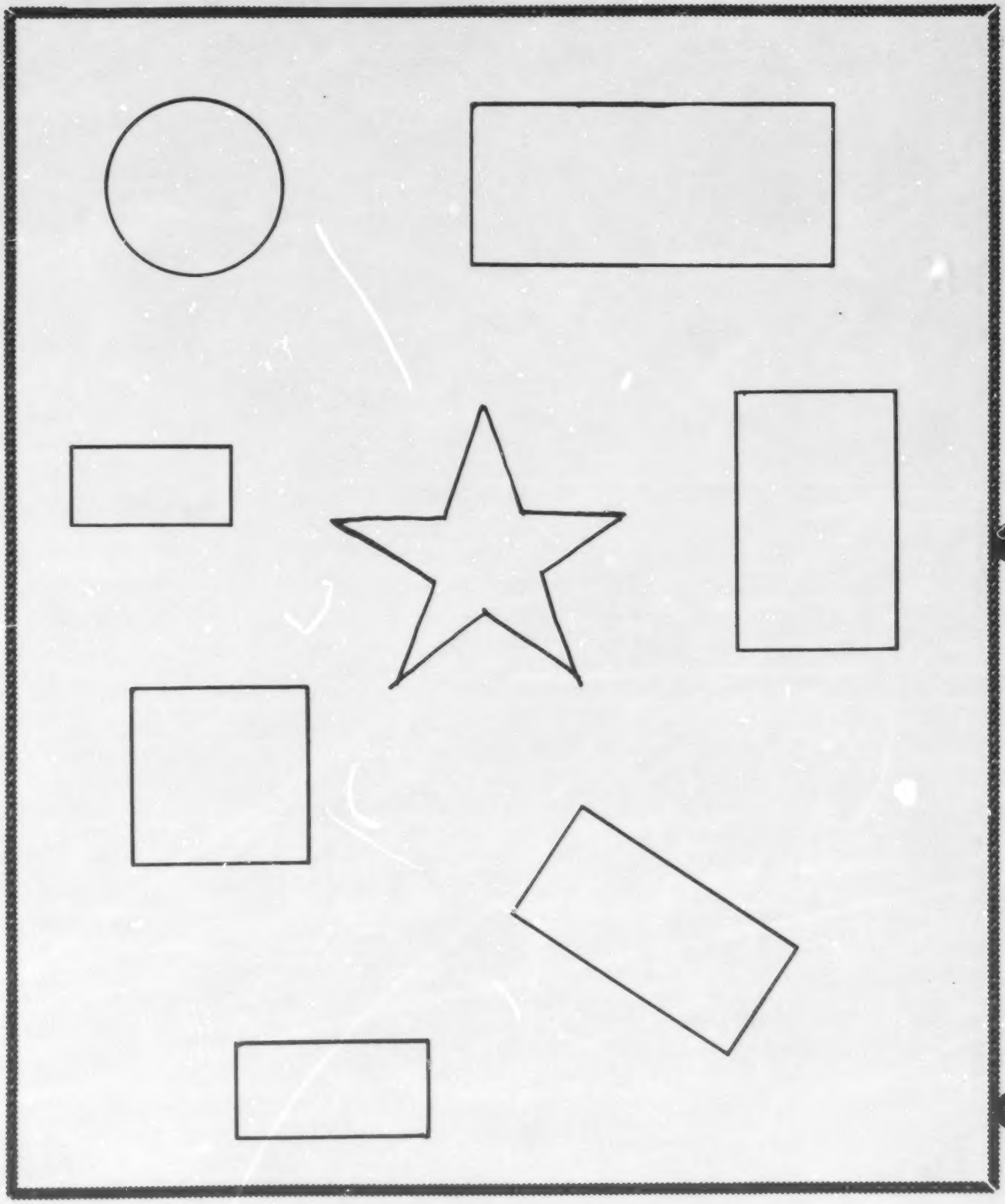




P.O. 0.01.03.04

NAME: _____ CLASS: ____

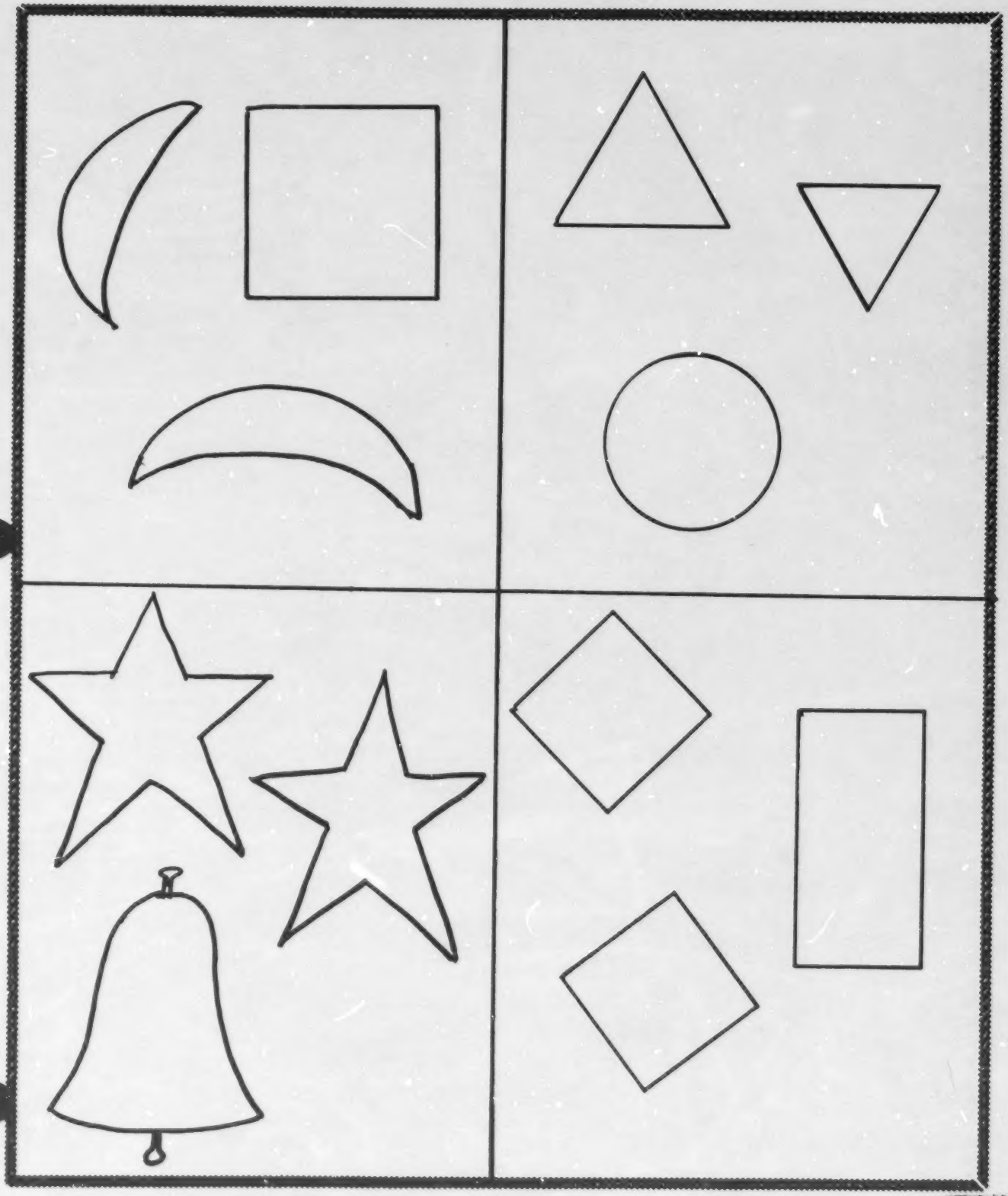
Color all the shapes that are the same red.
Ring each shape that is different.



P.O. 0.01.03.04

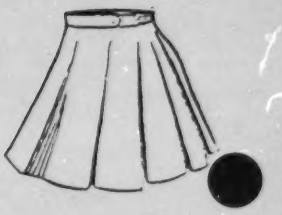
NAME: _____ CLASS: _____

Color the shapes that are the same in each box.

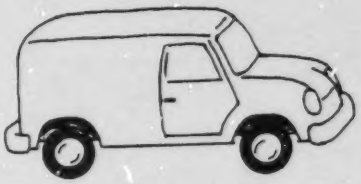


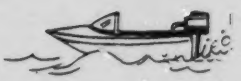
P.O. 0.01.03.05

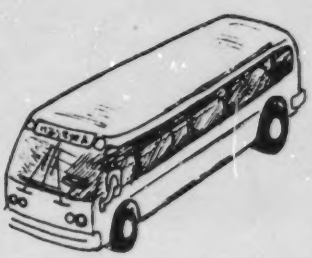
NAME: _____ CLASS: _____



Match the pictures which are the same size - small, medium and large.







0.01.04 GROUPS

(1 lesson/ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.04.01 recognize the number of objects in a group without counting.

e.g.,

0.01.04

VOCABULARY

TERMS

set
pairs

GETTING STARTED

Teach the finger play Two Little Eyes*:

Two Little Eyes

Two little eyes
that open and close,
Two little ears
and one little nose,
Two little cheeks
and one little chin,
Two little lips with
the teeth locked in.

(Point to both eyes, ears cheeks, ... simultaneously with index finger of each hand as recited.)

*Getting Started in the All-Day Kindergarten
New York City Board of Education, 1983

Place groups of 0-4 discs on separate trays in a row. Ask students to feel the discs to perceive the concepts of "oneness", "twoness", ... Include zero. Continue using different objects to reinforce number readiness.

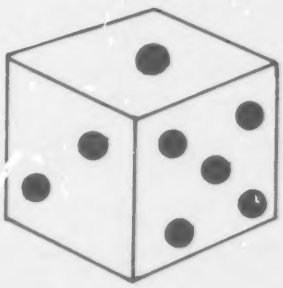
Repeat this procedure using groups of objects in random order.

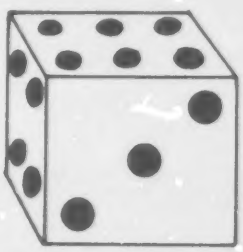
0.01.04

0.01.04.01 recognize the number of objects in a group without counting

STRATEGY 1: Prepare and distribute a picture of a tree and four leaves to pairs of students. Say to one student, "Place a group of leaves on the tree. Your partner must quickly tell you the number of leaves he/she sees. Tell your partner the number if he/she doesn't know it. Remove the leaves. Now let your partner place a group of leaves on the tree." Students continue taking turns. Students should try for instant recognition of each number.

STRATEGY 2: Prepare sponge dice with 0-5 and 1-6 dots. Distribute one die to each pair of students. Say, "Take turns rolling the die and quickly tell your partner the number of dots you see on top of the die." Demonstrate. Repeat this procedure by changing the die (0-5 or 1-6) each pair used.





0.01.05 COMPARISON OF GROUPS

(5 lessons)

PERFORMANCE OBJECTIVES

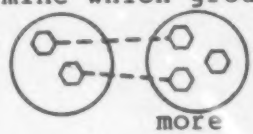
The student will be able to...

0.01.05.01 distinguish between all and none;

e.g.,

0.01.05.02 compare two groups of objects to determine which group has more objects;

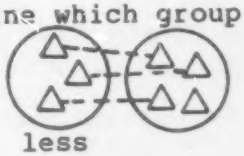
e.g.,



more (having 1 left over)

0.01.05.03 compare two groups of objects to determine which group has less objects;

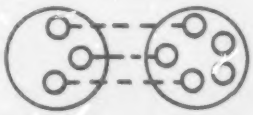
e.g.,



less

0.01.05.04 compare two groups of objects to determine which group has more or less objects;

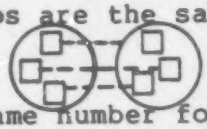
e.g.,



less more

0.01.05.05 compare two groups of objects to determine if the number of objects in both groups are the same.

e.g.,



Same number for both groups.

0.01.05

VOCABULARY

TERMS

all
none
more
fewer
less
enough
as many as
left over
same

GETTING STARTED

Arrange milk containers on a tray for each table of students. Distribute the milk saying, "Take one container of milk." Repeat this procedure for straws and napkins. During and after distribution, say, "How do we know if there are enough containers of milk for everyone? (Some students did not receive a milk container.) How can we tell if there are too many containers of milk?" (Some containers are left after each student has a container of milk.) Reinforce this skill by repeating the distribution process with other materials.

Distribute an empty egg carton to each student. Provide a box of buttons. Say, "Take a handful of buttons. Place one button in each section of the egg carton. Did you have enough buttons, not enough buttons or extra buttons?"

Each student should verbalize his/her result.

0.01.05

0.01.05.01 distinguish between all or none

STRATEGY 1: Distribute 3 discs and a container, e.g., can , envelope, to each student. Say, "Put one disc in front of you." Continue this procedure for the other two discs. Ask, "How many of the discs are now in front of you?" (all)

Ask each student to put one disc in his/her container. Continue this procedure for the other two discs. Ask, "How many discs do you now have in front of you?" (none)

Repeat this procedure asking other questions about the discs, e.g., How many discs are in the container? (all)

STRATEGY 2: Draw several chalk circles on the floor placing kindergarten blocks inside the circles. Play Simon Says using various students to demonstrate each direction. Say, "Simon says take all of the blocks out of the circle." After the students has completed the direction, ask, "How many of the blocks are now inside the circle? (none) How many are outside the circle? (all)

Continue the game by removing and replacing the blocks to show the terms all and none.

0.01.05.02 compare two groups of objects to determine which group has more objects

STRATEGY 1: Distribute the following materials to each student: 3 containers, or juice cans, 4 pencils, 5 crayons

STRATEGY 1: cont'd

and 6 straws. Say, "Put one pencil into each container. Were you able to use all of your pencils? (No) Why? (There were not enough containers.) Do you have more pencils or containers?" (pencils) Elicit that there are more pencils than containers because there is one pencil for which we have no container.

Repeat this procedure using the crayons and straws.

STRATEGY 2: Prepare for each student, the following material: a picture of 2 snowmen, 3 picture cards of top hats, a picture of 3 witches and 5 picture cards of brooms. Distribute the pictures of the 2 snowmen and 3 top hat picture cards. Say, "We are going to match groups of objects. Each snowman should have one top hat. Place a top hat on each. Were you able to place all the top hats on the snowmen? (no) Why?" Elicit that there are more top hats than snowmen because we have top hats that do not match. Repeat this procedure using the pictures of the witches and brooms.

0.01.05.03 compare two groups of objects to determine which group has less objects

STRATEGY 1: Distribute four jars of paint and three paint brushes to each student. Say, "We need a different paint brush for each jar of paint. Place one paint brush in front of each jar of paint. Do we have enough brushes for each jar?" (No) Elicit that there are less brushes than jars since one jar has no brush.

0.01.05

STRATEGY 2: Distribute three cylindrical blocks and two wedge blocks to each student. Demonstrate as you say, "These (cylindrical) blocks are towers. Place a roof on each tower." Point to the last tower and ask, "Why doesn't this tower have a roof?" (There are no more roofs.) Elicit that there were less roofs (or wedge blocks) than towers.

0.01.05.04 compare two groups of objects to determine which group has more or less objects

STRATEGY 1: Prepare and distribute to each student, two colored paper bags, e.g., red and blue, containing groups of matching toys in various quantities. Say, "Put the toys from the red bag on your desk. Find the same toys in the blue bag and place them on your desk. Do you have any toys left in the blue bag?" (Yes) Elicit that matching the groups will allow us to see if one of the groups has more toys. Say, "Which bag has more toys?" (the blue bag) Repeat this procedure to determine which bag had less objects.

STRATEGY 2: Prepare and distribute to each student, a worksheet with four large circles and a paper bag with five objects. Say, "In the bag are objects. How can you tell if you have more objects or more circles?" Elicit that by placing one object in each circle we can see whether there are more circles or more objects.

e.g.,

Repeat this procedure to show whether there are less objects or less circles.

0.01.05

0.01.05.05 compare two groups of objects to determine if the number of objects in both groups are the same

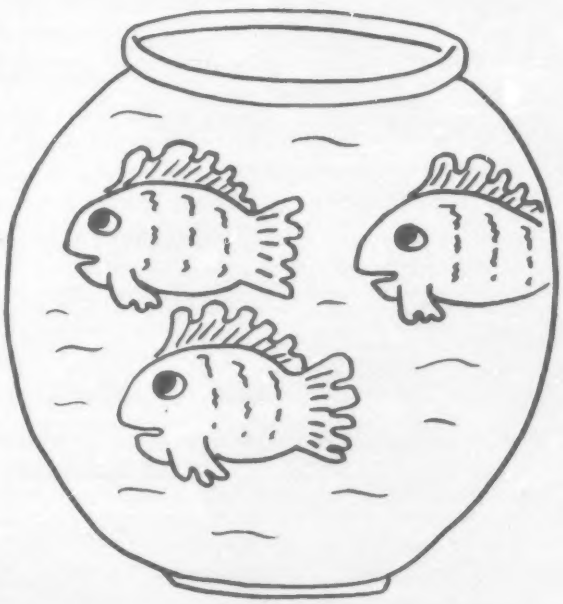
STRATEGY 1: Place four empty milk containers with the front cut open and four small toy cars on a table. Point to the containers and say, "These are garages. How can we tell if there is a garage for each car?" Ask a student to come to the table and "park" his/her car in its garage. Continue for the other 3 cars. Ask, "Does each car have a garage?" (Yes) Elicit that since we do not have any cars or garages left over, we have the same number in both groups.

STRATEGY 2: Distribute 5 red discs and 5 blue discs to each student. Say, "Place all the red discs on the table in front of you. How can we tell if there are enough blue discs to match each red disc? Match the blue discs to the red discs on your desk. Are there any discs left?" (No) Elicit that we have the same number of discs in each group since we have no discs left over. Repeat this procedure using other amounts of discs.

P.O. 0.01.05.01

NAME: _____ CLASS: _____

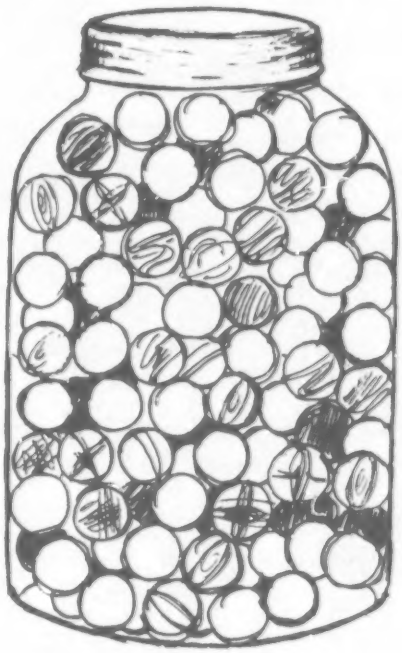
Color the bowls that have all the objects green.
Color the bowls that have none of the objects red.



P.O. 0.01.05.01

NAME: _____ CLASS: _____

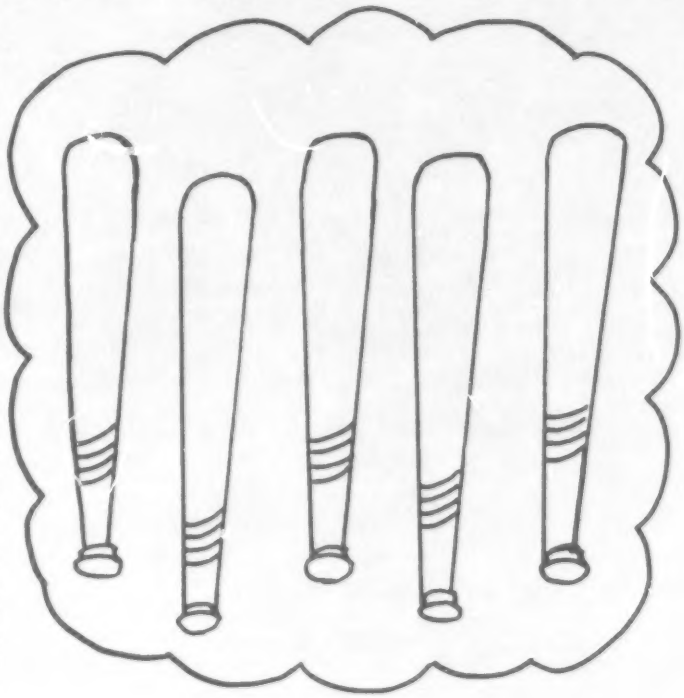
Color the jar with all the marbles.
Color the clown with none of the balloons.

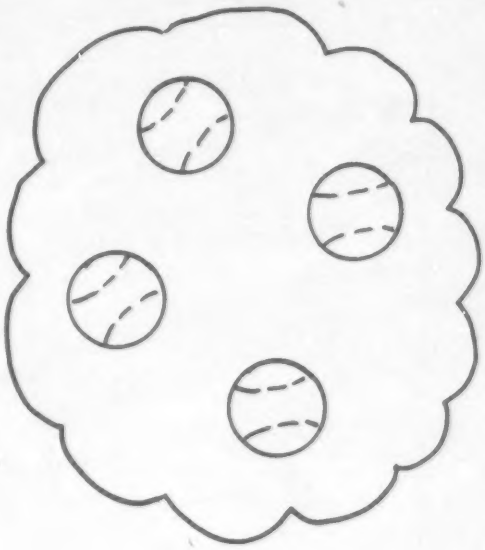


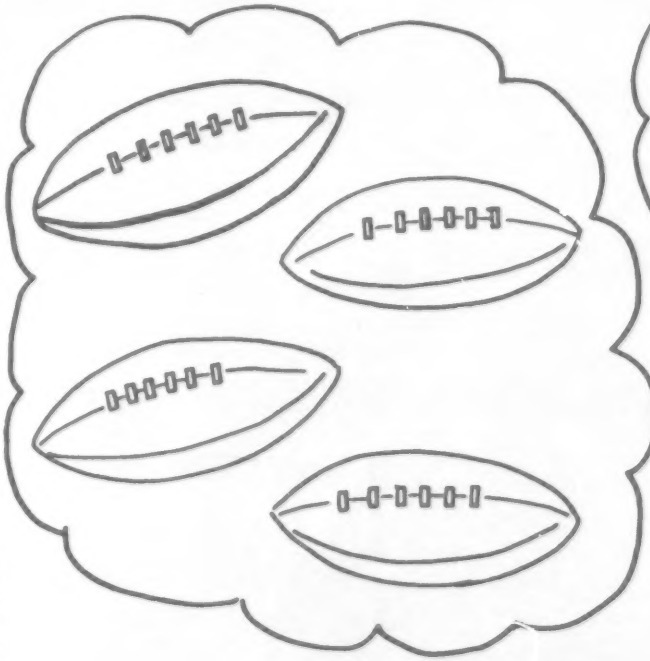
P.O. 0.01.05.02

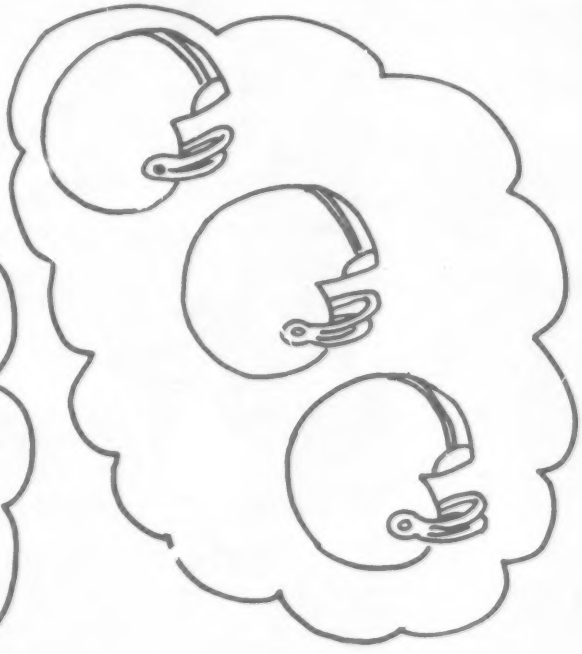
NAME: _____ CLASS: _____

Match. Color the group in each row which has more objects.





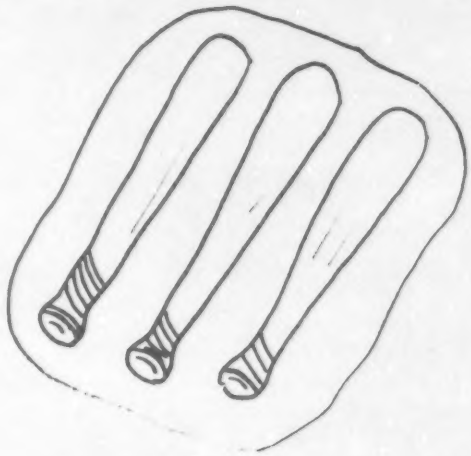


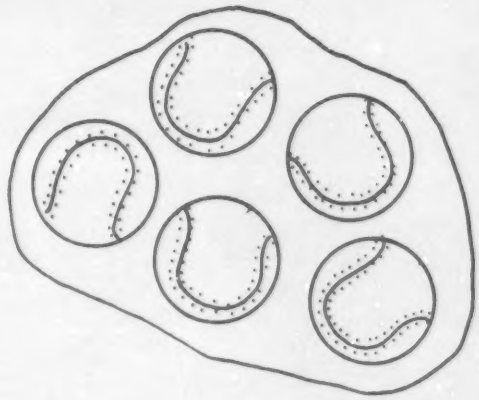


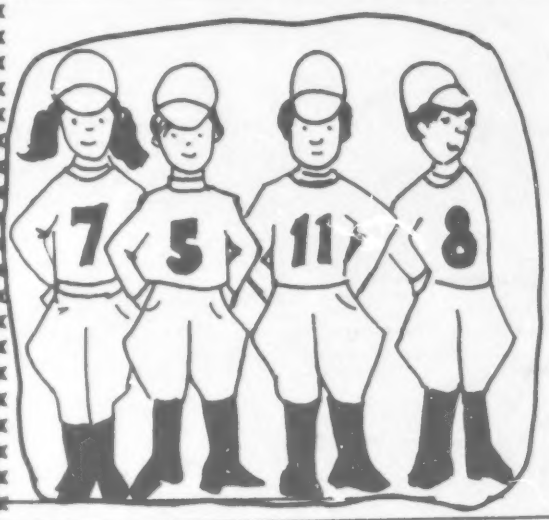
P.O. 0.01.05.02

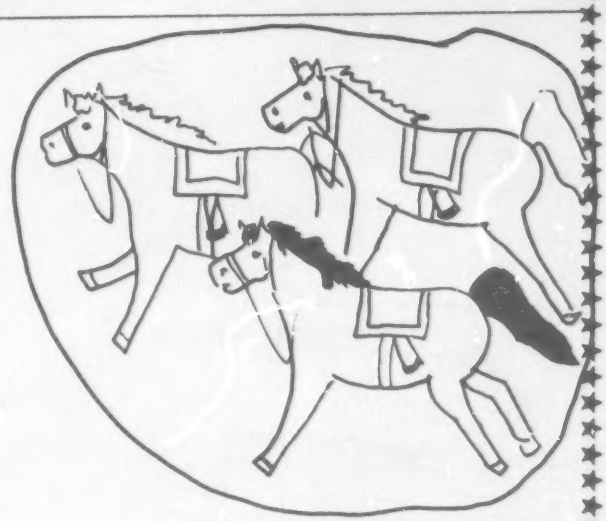
NAME: _____ CLASS: ____

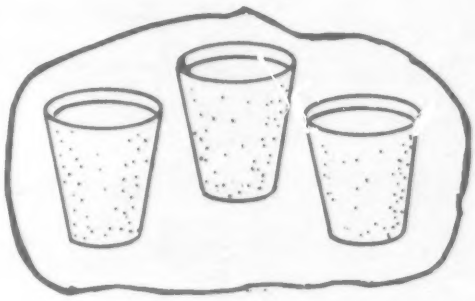
Match.
Color the group which has more objects.

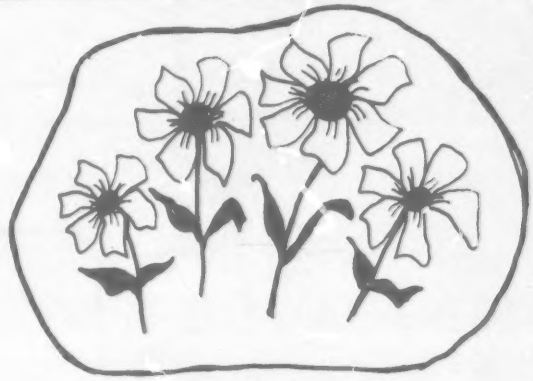








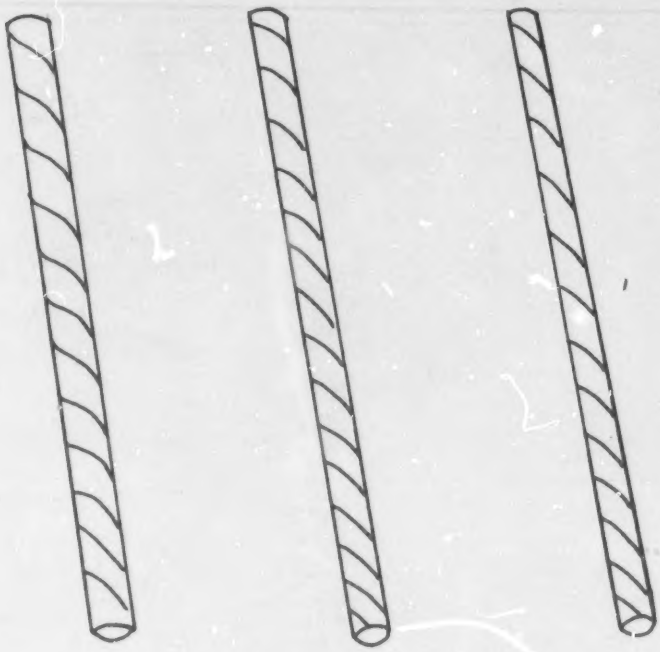


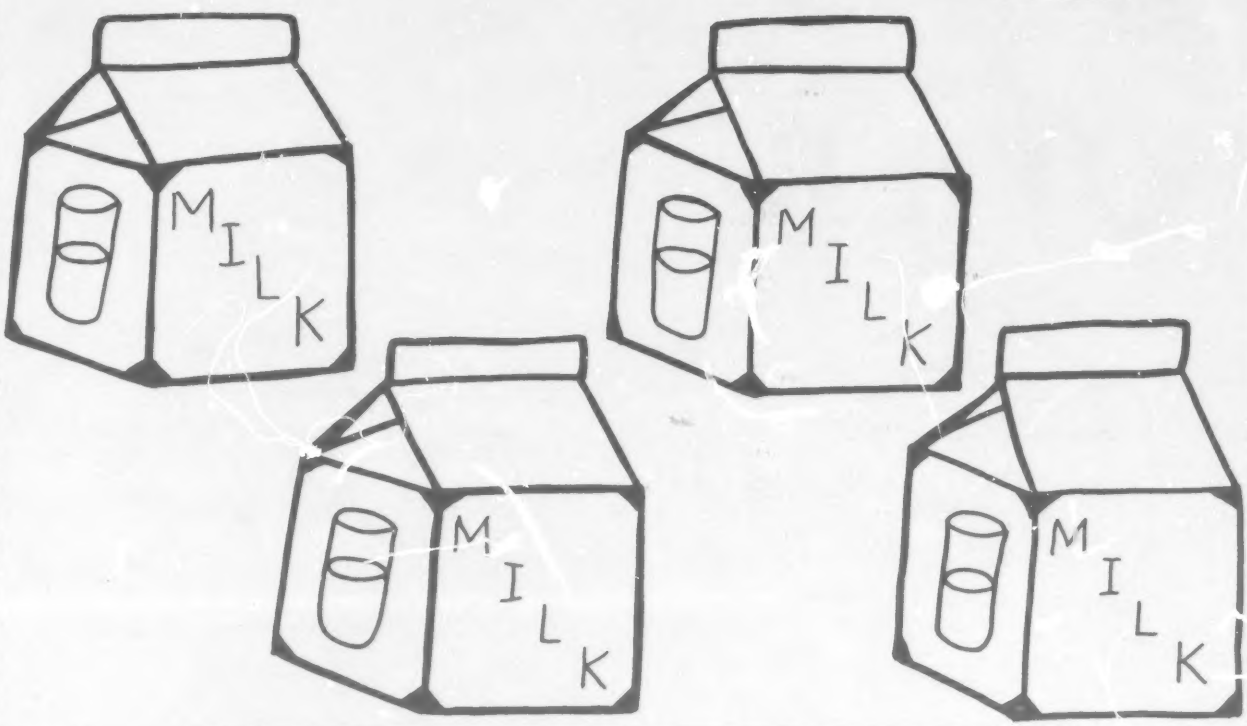


P.O. 0.01.05.03

NAME: _____ CLASS: _____

Match one straw with each milk container.
Which has less? Color that group.

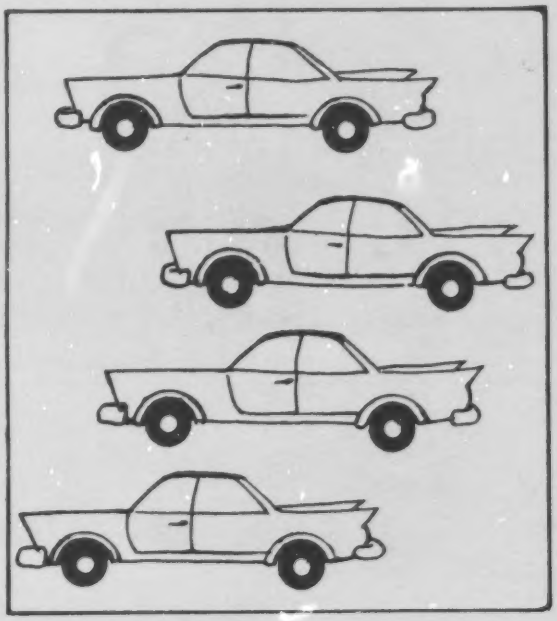


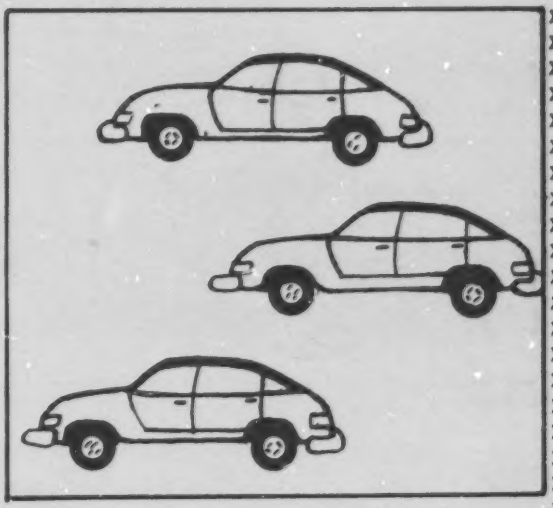


P.O. 0.01.05.03

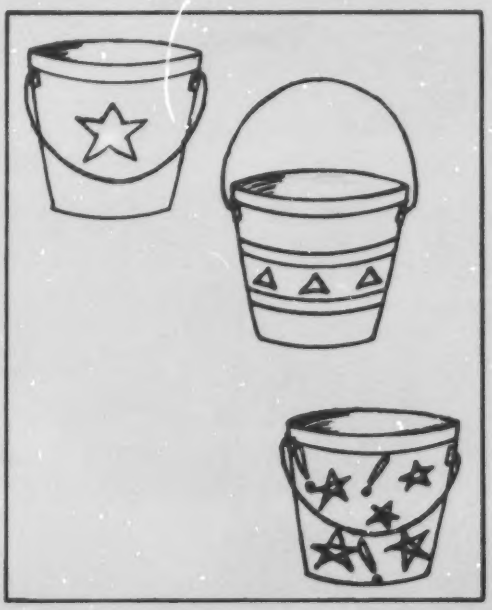
NAME: _____ CLASS: _____

Match the groups of cars. Color the group with less cars.





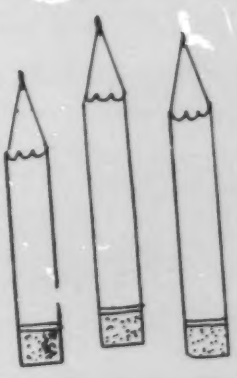
Match the groups of pails. Color the group with less pails.

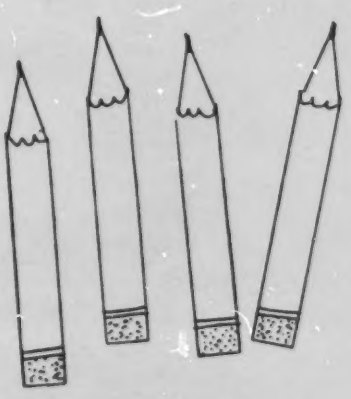


P.O. 0.01.05.04

NAME: _____ CLASS: _____

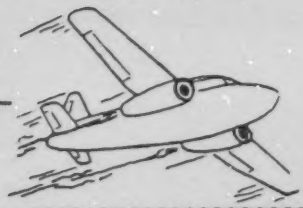
Match. Circle the group that has more people or objects.
X the group that has less people or objects.



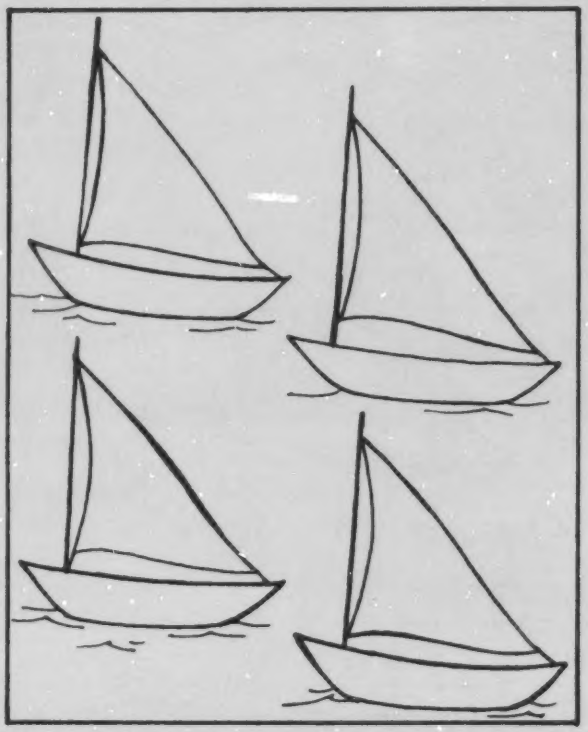


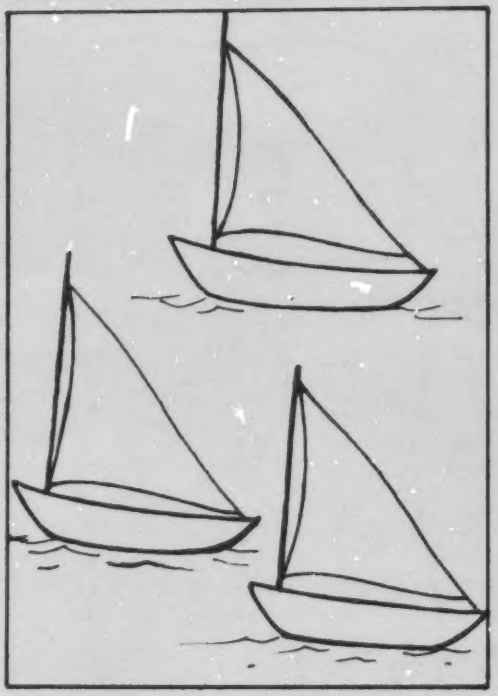
P.O. 0.01.05.04

NAME: _____ CLASS: _____

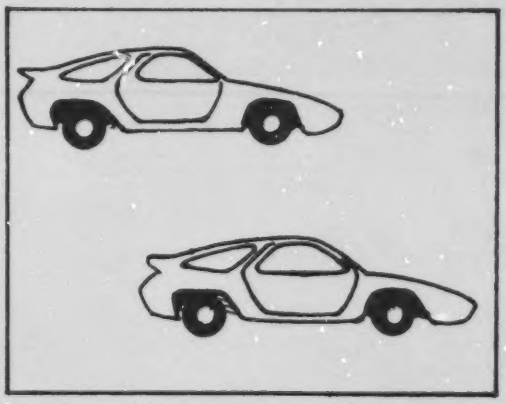


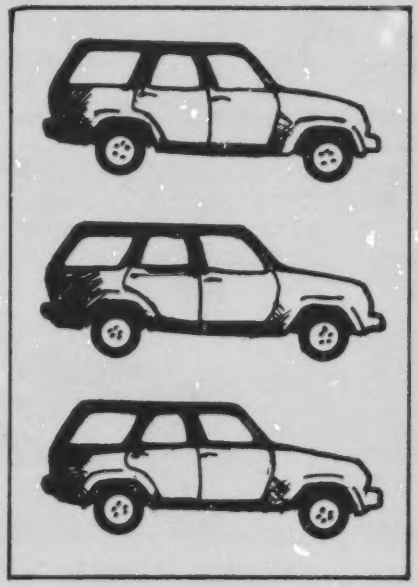
Match the boats. Color the group with less boats.





Match the cars. Color the group with more cars.

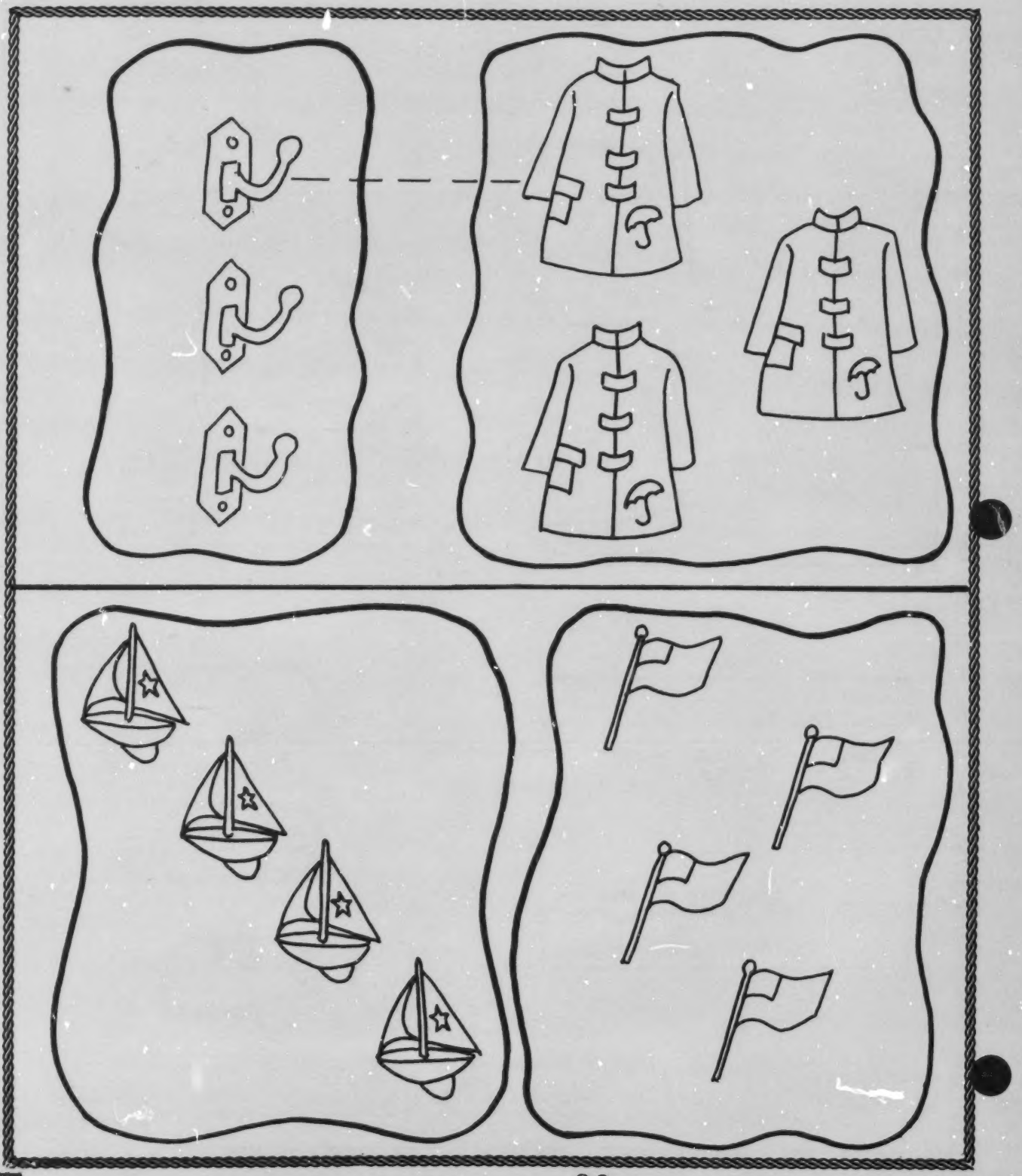




P.O. 0.01.05.05

NAME: _____ CLASS: _____

Show that there are as many hooks as coats by matching.
Show that are as many flags as boats by matching.



P.O. 0.01.05.05

NAME: _____ CLASS: _

A. Draw as many balls as gloves.

B. Draw as many hats as clowns.

A.

B.

0.01.06 VOCABULARY

(6 lessons/ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.06.01 distinguish between not enough and extra;
e.g.,

not enough ice cream cones

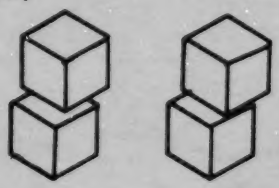
or

extra ice cream cones

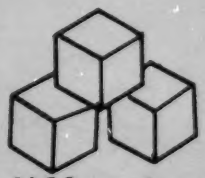
0.01.06.02 recognize enough by means of sharing;
e.g.,

Two cookies on a plate would be enough to give two boys one cookie each.

0.01.06.03 identify amounts which are the same and amounts which are different;
e.g.,



same



different

0.01.06.04 distinguish between more and less;
e.g.,

more

less

0.01.06.05 distinguish between most and least;
e.g.,

most

least

0.01.06.06 distinguish among many, as many as and fewest.
e.g.,

There are many books in the bookcase.

There are as many books on the top shelf as on the bottom shelf.

The middle shelf has the fewest number of books.

VOCABULARY

TERMS

not enough	more
extra	less
enough	most
same	least
different	many
as many as	fewest

GETTING STARTED

Prepare and distribute a pair of paper hands and a pair of paper mittens to each student. Say, "Put the hands next to each other on your table. In the winter, hands get very cold. How can we keep them warm? Put the mittens on the hands to keep them warm." Repeat this procedure using other objects that can be matched; e.g., feet and socks or heads and hats.

Ask the students to form a double line. Each student should hold hands with his/her partner. Determine whether everyone can and/or does have a partner.

0.01.06

0.01.06.01 distinguish between not enough and extra

STRATEGY 1: Remove the covers from five containers and place all but two in a paper bag with the containers. Distribute a bag to each table, but vary the number of covers and containers. Say, "Match the covers and containers on your table. Were you able to find a cover for each container?" Elicit answers that show some tables had extra covers/containers while others didn't have enough.

STRATEGY 2: Distribute five circles and 1-7 sticks to each student. Say, "Let's make lollipops. Do you have extra sticks? Do you have enough circles?"

When the students have finished, ask them to group themselves into three groups: those who had exactly enough; those who had extra; and those who were in need of more (not enough). Ask the students with the extra sticks to share them with those who didn't have enough so that they, too, may complete their lollipops.

0.01.06.02 recognize enough by means of sharing

STRATEGY 1: Reinforce the term enough when distributing materials during daily routines and at snack time. Each time students distribute materials or snacks say, "Did you have enough? Did Bobby have enough?" (Yes, I had enough because everyone got a cookie. or No, I did not have enough because Maria did not get a cookie.)

STRATEGY 2: Prepare and distribute 2 paper cups, one filled with crayons and the other with pencils, to each table. Make sure that one cup contains enough crayons or pencils for each student at that table and the other cup does not contain enough. Ask one student at each table to distribute the crayons. Say, "Did you have enough crayons?" (Yes, we all have crayons./No, Jose did not get a crayon.) Repeat this procedure using other objects.

0.01.06.03 identify amounts which are the same and amounts which are different

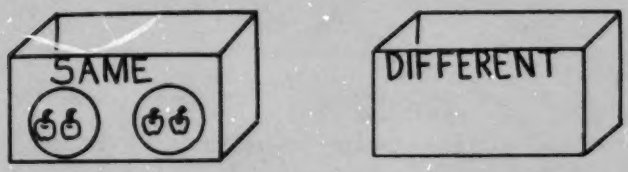
STRATEGY 1: Place 4 stacks of blocks on a table.
e.g.,

A B C D

Four students should sit at the table. Say, "Look at the stacks of blocks. Are they all the same? How are they different? Some stacks have more blocks than others. How are the first two stacks different? There are more blocks in stack A. There are less blocks in stack B." Continue to question students about the stacks, eliciting the following information: Stack A has the same amount as stack C. Stack D has more blocks than stack B. Stack B and stack D are different from stack A and stack C.

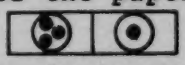
STRATEGY 2: Prepare two boxes: one labeled SAME with picture clues, the other labeled DIFFERENT having no pictures. Prepare and display pictures of 2 simple objects. Demonstrate as you say, "Place the

STRATEGY 2: cont'd picture that has the same amount of objects as those on the SAME box in that box. Place pictures that have a different amount in the box labeled DIFFERENT." When the task has been completed, ask the student to explain their decisions. Repeat this procedure using other picture clues.



0.01.06.04 distinguish between more (than) and less (than)

STRATEGY 1: At snack time, prepare plates with cookies. The plates should have more or less than the correct amount of cookies for the group. One student from each table should distribute the cookies to his/her group. After the students start to distribute the cookies, say, "Are there any problems? Does anyone have more than or less than the number of cookies they need? You have more cookies if you have some that have not been given out after everyone has one. You have less cookies than you need if someone did not get a cookie." Repeat this procedure using napkins.

STRATEGY 2: Prepare a sheet with a large circle drawn on both halves of the paper and discs for each student. e.g., 
Draw two circles on the chalkboard. Fill the circles with unequal amounts of dots. Point to the circle with more dots and say, "This group has <u>more</u> dots than the other group." Repeat this procedure for introducing less.

STRATEGY 2: cont'd

Distribute the papers with 2 large circles. Place unequal groups of discs on each circle. Say, "Find the group that shows more. Point to the group that shows more." Repeat this procedure for less. Vary the quantities in the circles and ask the pupils to tell everyone which group has more and which group has less.

0.01.06.05 distinguish between most and least

STRATEGY 1: Distribute 3 similar boxes or containers (shoe box, milk container) which contain differing numbers of cubes (1-4). Say, "Shake each box. Which do you think has the most/least cubes? Open your boxes. How can we find out which box has the most/least cubes? Line up each container's cubes. The container with the longest row has more cubes than the other containers; therefore, that container has the most cubes."

STRATEGY 2: Prepare and distribute 4 plastic containers with different amounts of discs (0-10) to each table. Say, "Take your discs out of the container. Make a row with your discs. Match your row to the other rows. Which container has the most discs? How do you know? (The container with the most discs has more than any other container.) Which container has the least discs? How do you know? The container with the least amount of discs has less (fewer) discs than the other container."

0.01.06

0.01.06.06 distinguish among many, as many as, and fewest

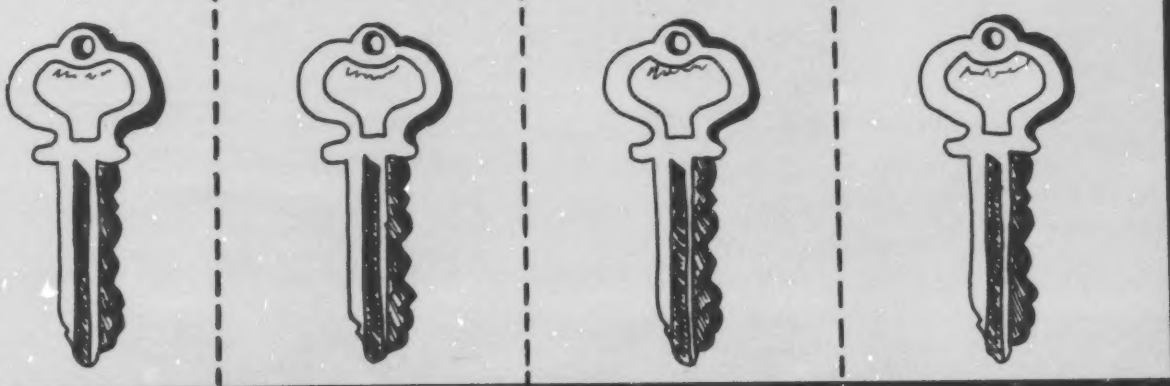
STRATEGY 1: Distribute a plastic bag containing 15 cubes (5 red, 4 yellow, 4 green, 2 blue) to each table. Say, "We need to sort these cubes into 4 piles. How should we sort them? Take the cubes out of the bag and place them in piles according to color." Discuss their results: there are as many yellow cubes as green cubes, the fewest cubes are blue, there are many red cubes.

STRATEGY 2: Distribute painted popsicle sticks. Two students at each table should be given four yellow sticks. The other students at that table should be given one green stick, two blue sticks or three red sticks. Say, "Make a row with your sticks. Are you happy with the amount of sticks you received? Why or why not?" Students may need to compare their row to the others. Make sure that the rows are aligned properly. Say to the students with the same number of sticks, "Why are you happy with the sticks you received? (We both have the same.) Mary has many sticks. She has as many as Bobby." Say to the student with the least number of sticks, "Why are you unhappy? (Everyone has more sticks than I.) Jose has the fewest number of sticks." Repeat this procedure after changing the amount of sticks each student holds.

P.O. 0.01.06.01

NAME: _____ CLASS: ___

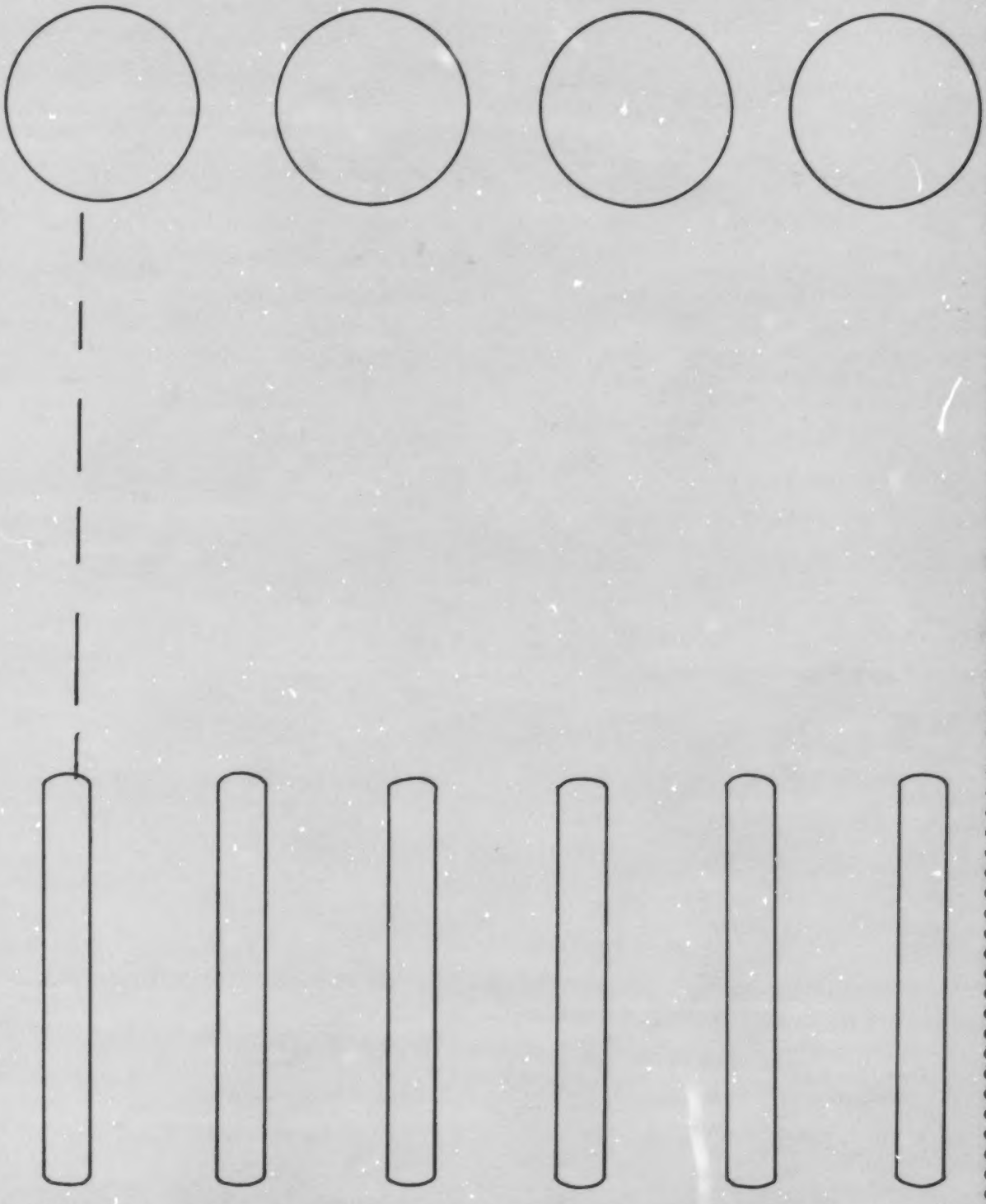
Cut and paste the keys under the locks.
Do you have a key for each lock?
Color the extra object.



P.O. 0.01.06.01

NAME: _____ CLASS: _____

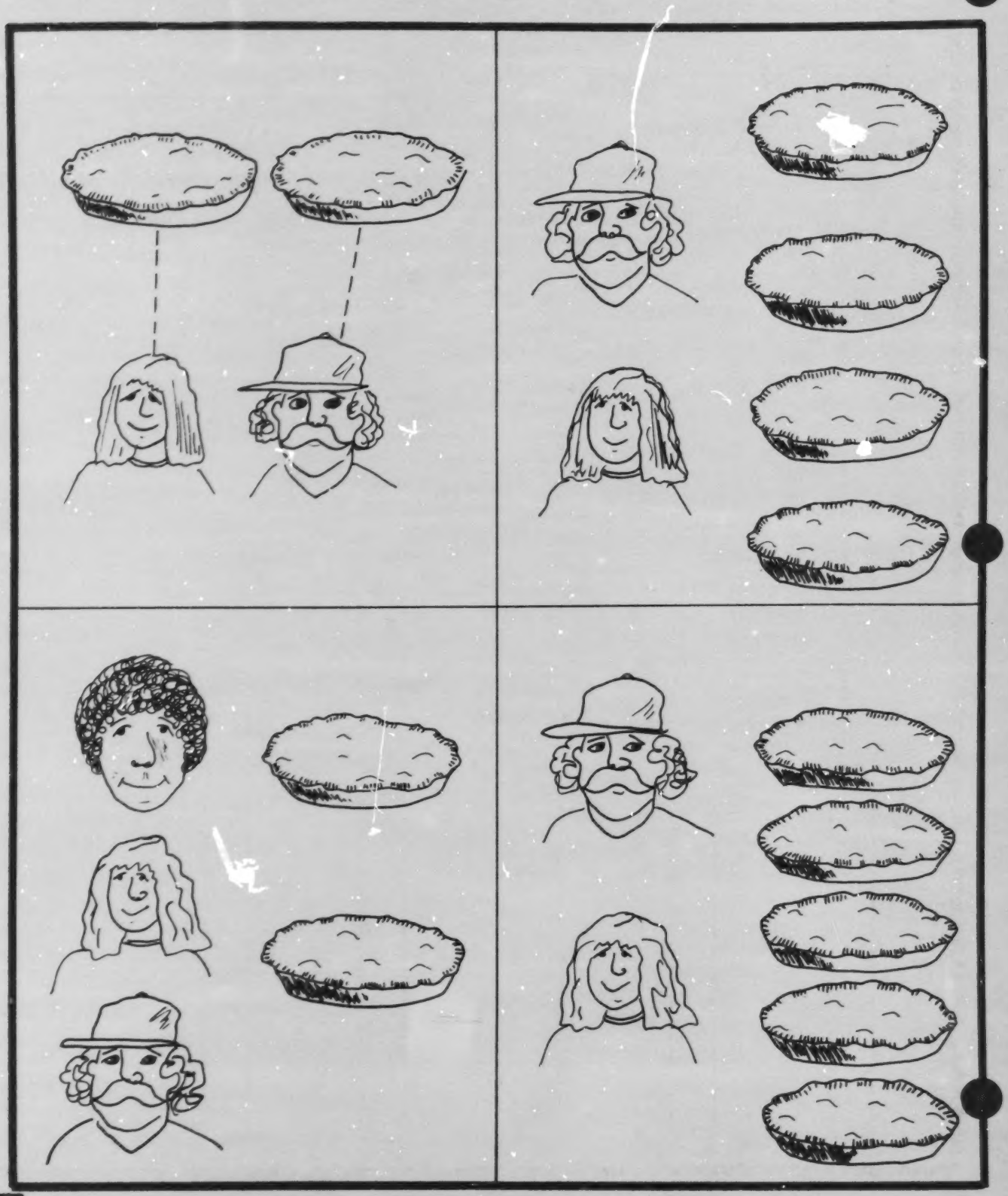
Match the sticks to the lollipops.
Did we have enough lollipops?
Color the extra object.



P.O. 0.01.06.02

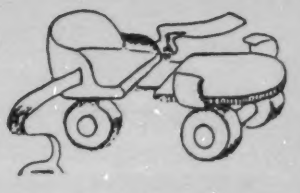
NAME: _____ CLASS: _____

In which pictures can <u>whole</u> pies be equally shared ?
Draw lines to show how to share the pies equally.

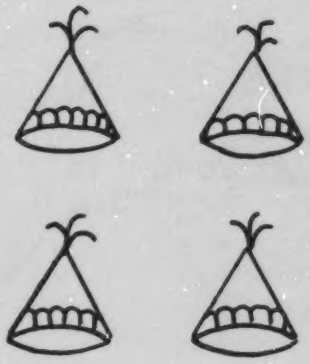


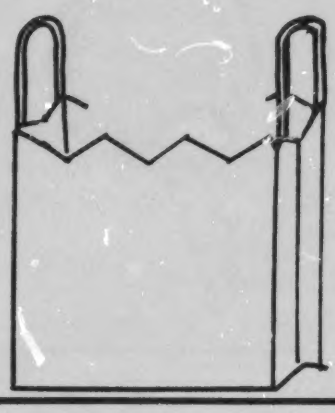
P.O. 0.01.06.02

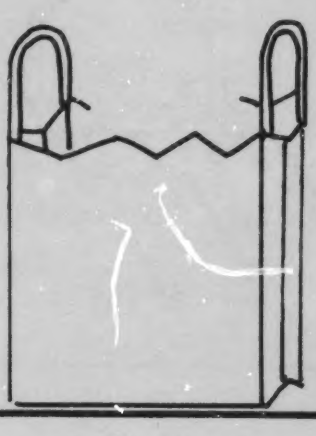
NAME: _____ CLASS: _____

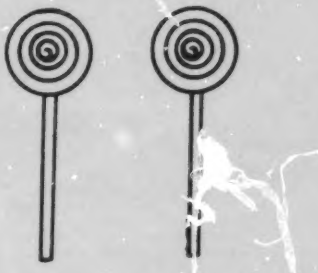


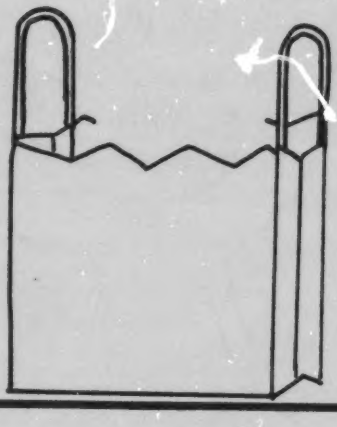
Share the party objects equally in the party bags.

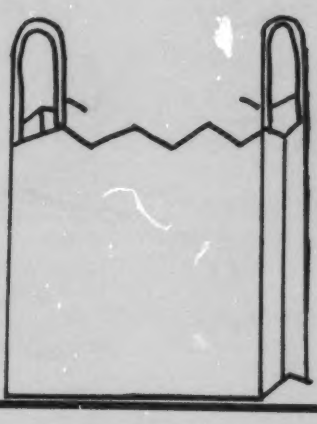


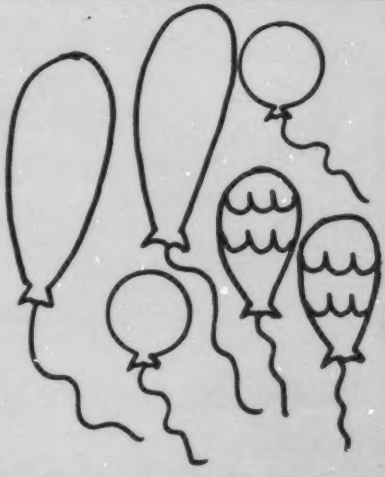


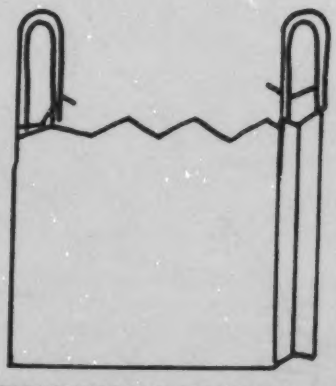


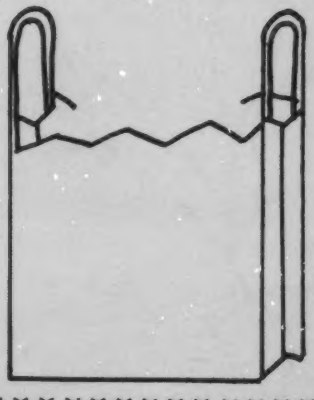








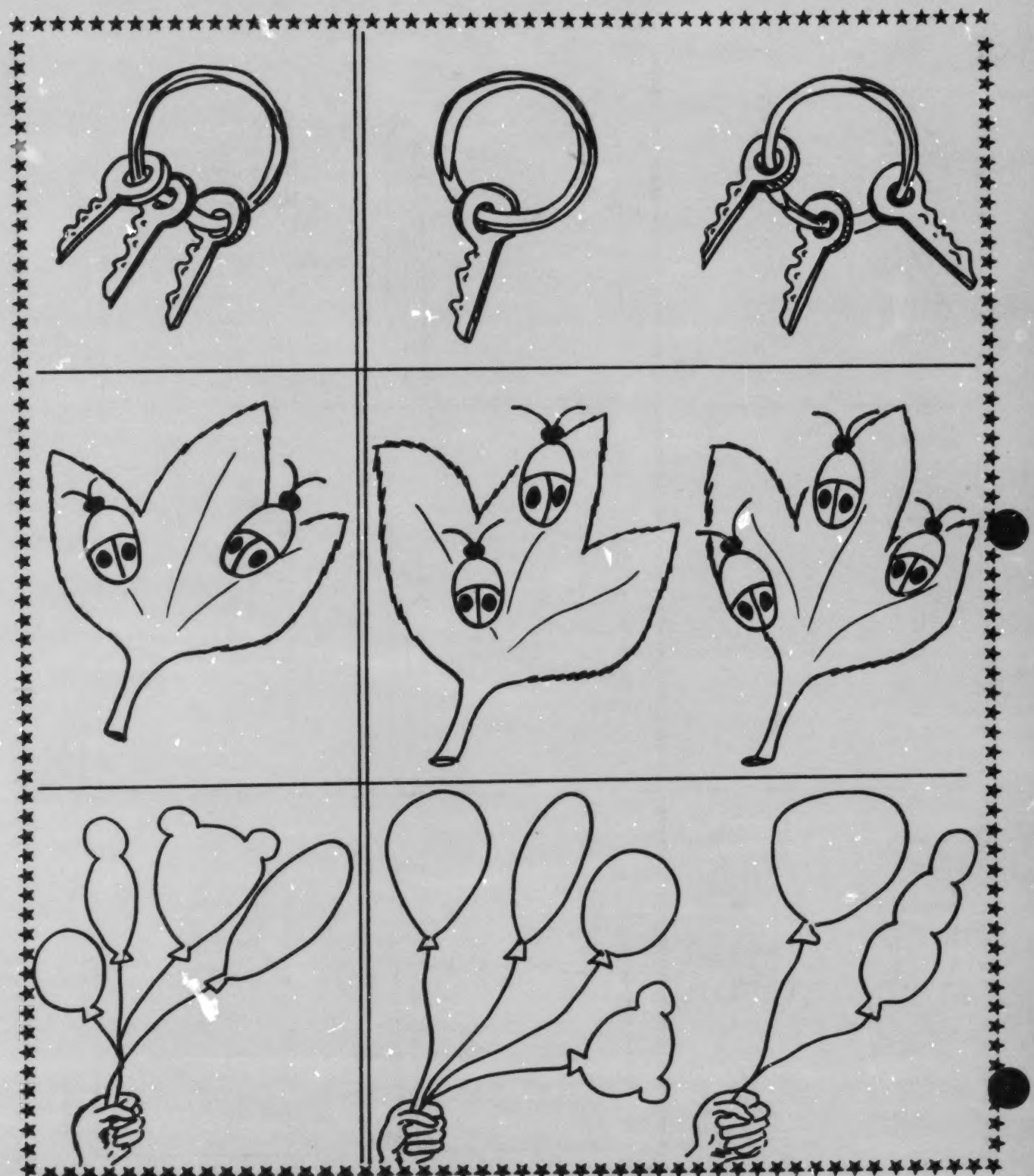




P.O. 0.01.06.03

NAME: _____ CLASS: _____

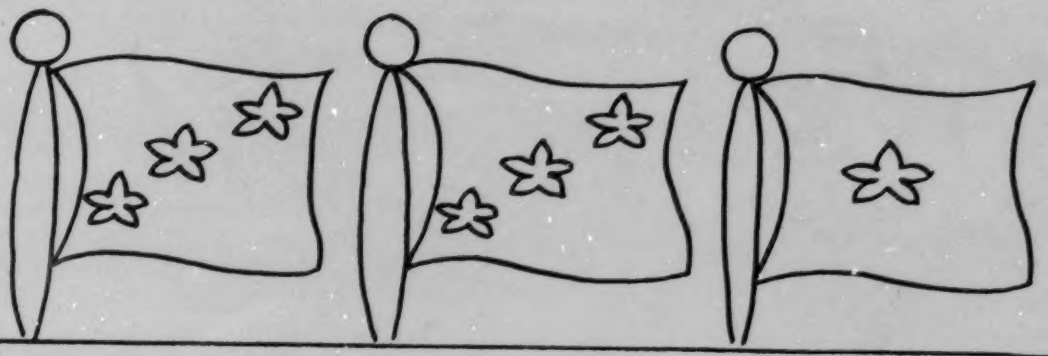
Color the picture which has the same number of objects as the first picture.

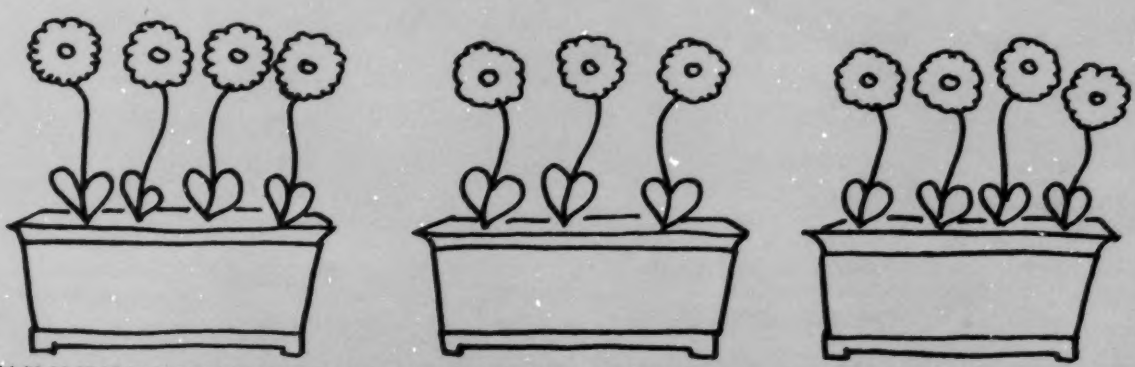


P.O. 0.01.06.03

NAME: _____ CLASS: _____

Color the object in each group that has a different amount.

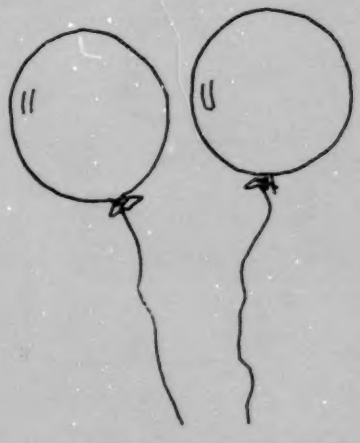


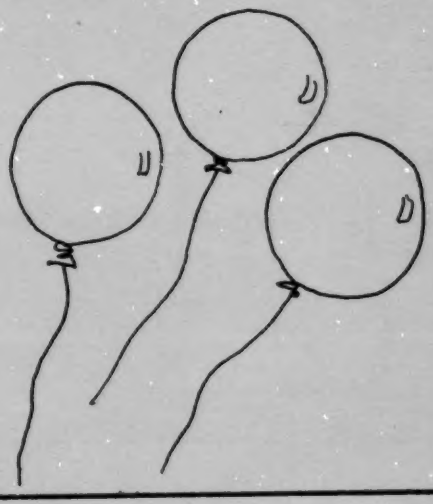


P.O. 0.01.06.04

NAME: _____ CLASS: _____

Circle the group that has less.

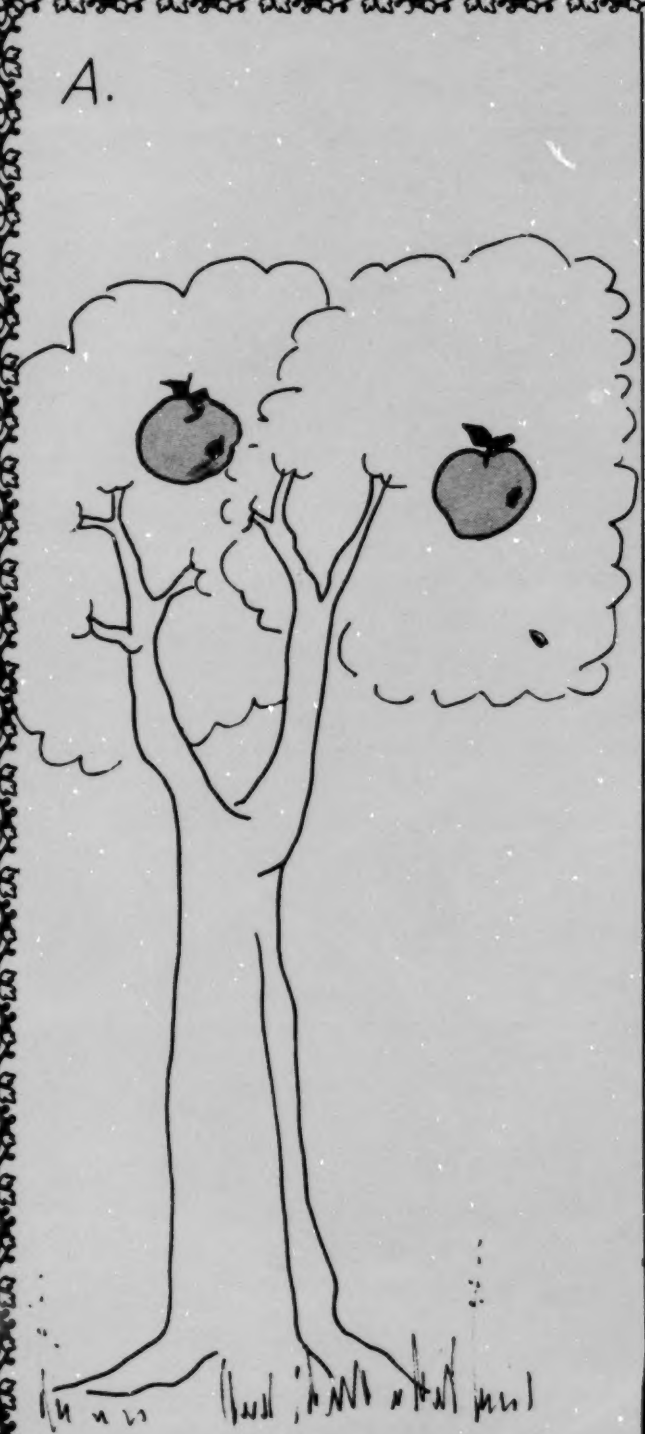




P.O. 0.01.06.04

NAME: _____ CLASS: _____

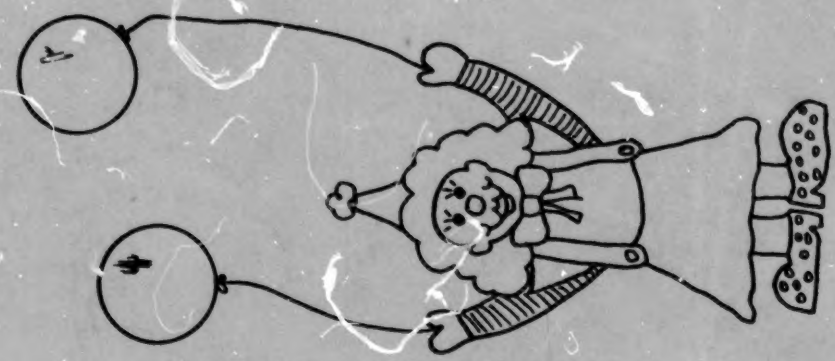
A. Look at the apples on this tree.
B. Draw more apples on this tree than there are on tree A.



P.O. 0.01.06.05

NAME: _____ CLASS: _____

Color the clown with the most balloons red.
Color the clown with the least number of balloons blue



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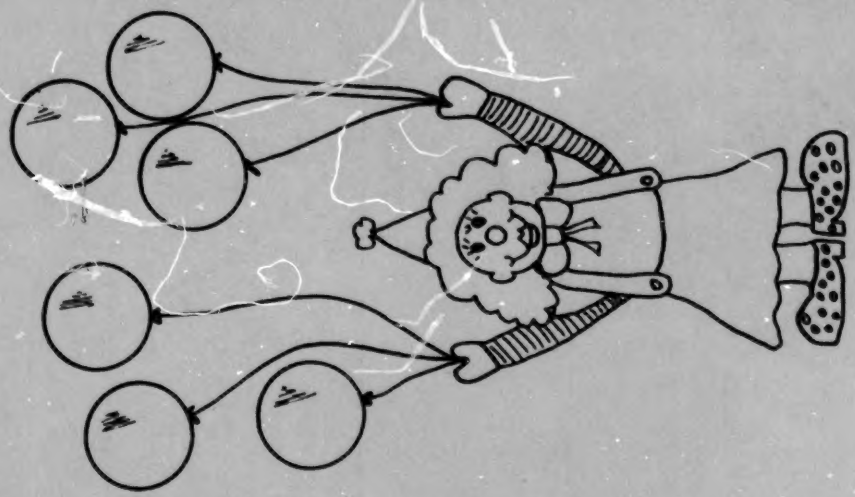
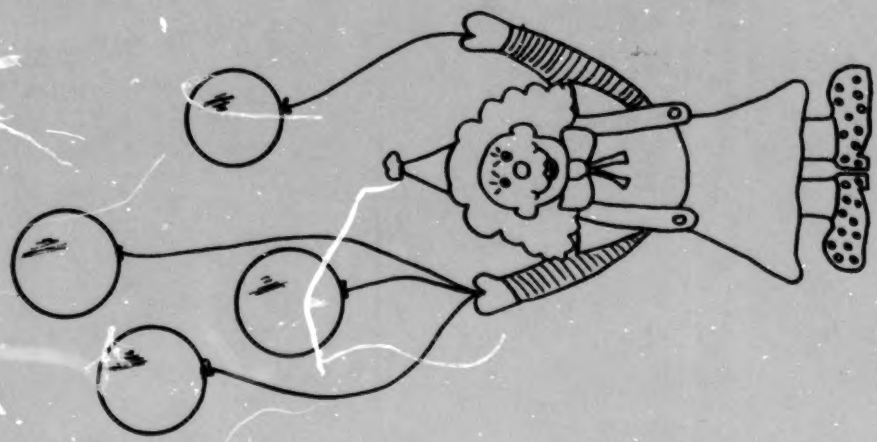
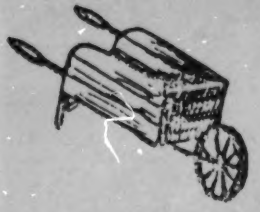




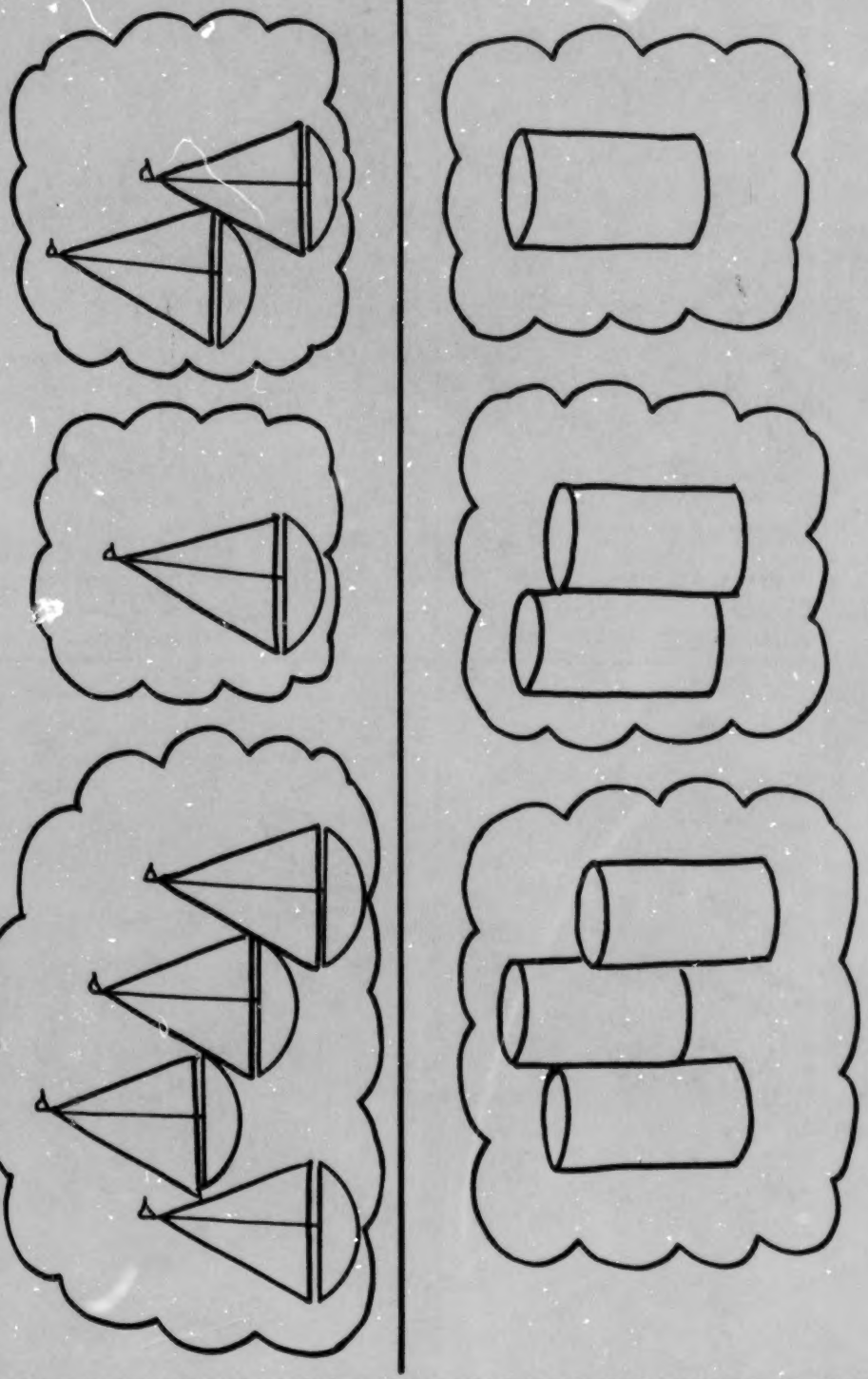
117

P.O. 0.01.06.05

NAME: _____ CLASS: _____



Color the group that has the most boats brown.
Color the group that has the least cans orange.



P.O. 0.01.06.06

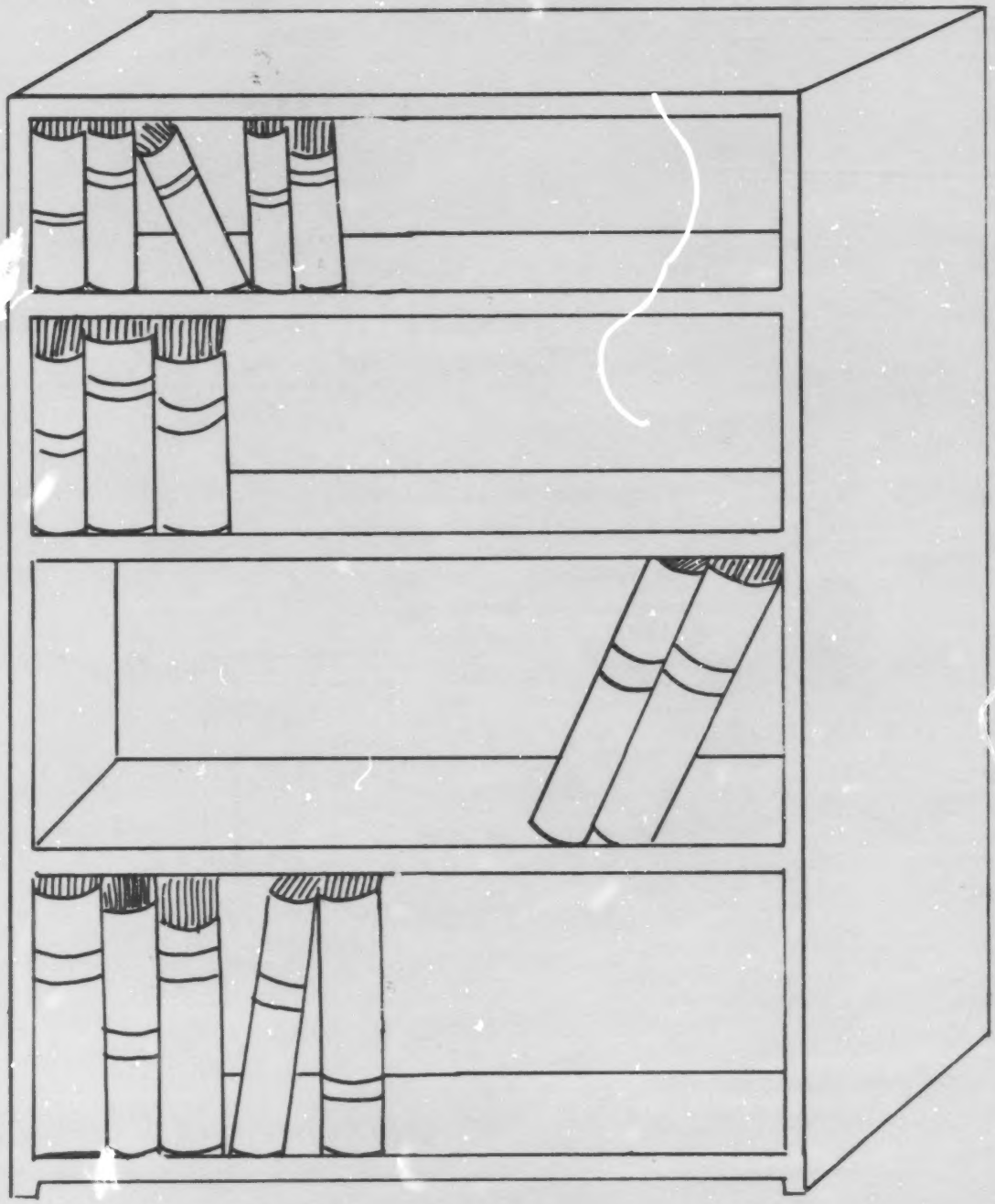
NAME: _____ CLASS: _____

Color the clown holding the fewest balloons red.
Color the clowns holding the same number of balloons green.

P.). 0.01.06.06

NAME:_____ CLASS:_____

Which shelf has as many books as the top shelf ? Color those books green. Which shelf has the fewest books ? Color those books blue.



0.09.01 IDENTIFICATION - PARTS OF THREE-DIMENSIONAL SHAPES

(2 lessons)

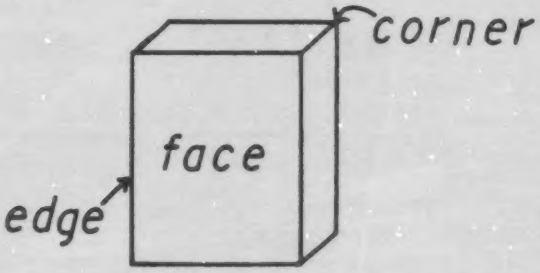
PERFORMANCE OBJECTIVES

The student will be able to...

0.09.01.01 identify three-dimensional shapes;
e.g.,

0.09.01.02 recognize faces, edges and corners of a three-dimensional shape.
e.g.,

a cereal box



0.09.01

VOCABULARY

TERMS

sides
shapes
faces
edges
corners

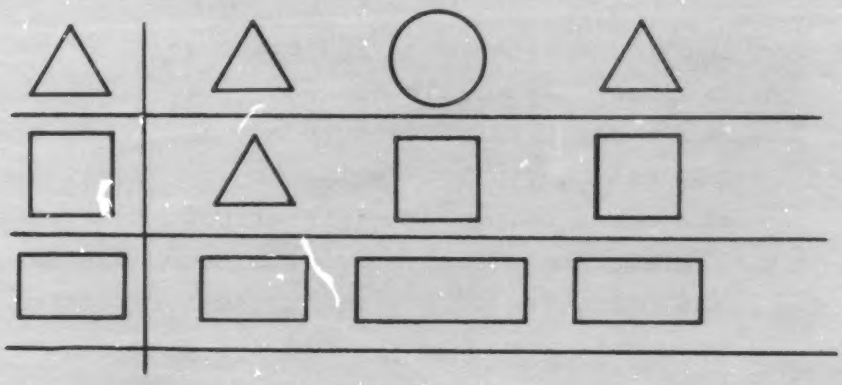
GETTING STARTED

Display a classroom globe and say, "Put your arms around the globe. Look and walk around the classroom to locate objects that are the same shape." Repeat this procedure using a book or cigar box to represent a rectangular solid and a squared gift box to represent a cube.

Display a row of shapes on the chalkboard.
e.g.,

Distribute crayons and a sheet of these shapes to each student. Say, "Let's color the shapes that are the same as the first shape shown."

Repeat this procedure with additional rows.



0.09.01

0.09.01.01 identify three dimensional shapes

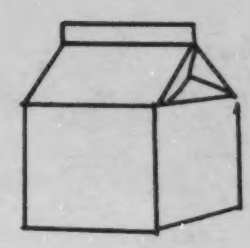
STRATEGY 1: Ask various students to hold a rubber ball, a marble, and a set of plastic geometric 3-dimensional shapes. Ask the students to name the round objects (rubber ball, plastic ball, and marble). Repeat this procedure with other 3-dimensional shapes and related objects.

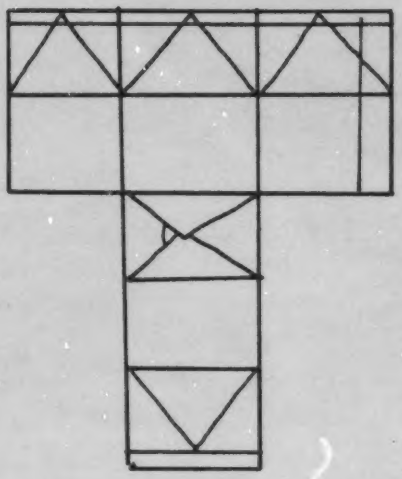
STRATEGY 2: Place a ball, a shoe box, a pyramid, and a wooden toaster in the center of a table. Ask a student to hold up the ball. Say, "Who can find something that looks like this ball?" (The globe, beads, the doll's head.) Conduct a search to identify other shapes, e.g., boxes holding counters, cans holding logs, the fish tank. Identify the objects. Ask a student to describe his/her findings. Continue this procedure and list the objects on the chalkboard.

0.09.01.02 recognize faces, edges and corners of a three dimensional shape

STRATEGY 1: Display a cereal box and other three-dimensional cardboard geometric shapes. Hold up the cereal box. Say, "You have only one face, but this cereal box has many. I'll point to its faces." Rotate the box showing each face (front, back, top, bottom, and sides). Outline each edge as you show the perimeter of the rectangle. Repeat this procedure with the pyramid and cube.

STRATEGY 2: Display 2 empty milk containers. Cut one carefully on its fold lines to separate each unit. Tape each separated piece to the chalkboard. Showing the whole container, say, "This is a milk container." Point to the container parts on the chalkboard and say, "These are the faces that were put together to make the container." Ask other students to identify all the faces needed. Show that when two rectangles or a square and rectangle touch they have a common edge.





0.01.07 NUMERALS ONE (1) THROUGH FOUR (4)

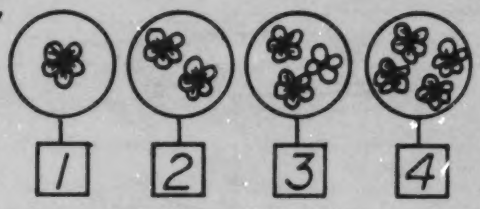
(4 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.01.07.01 associate the numerals 1 through 4 with a group (set, lot, bunch, heap, pile) having one through four objects;

e.g.,



0.01.07.02 recognize and identify the symbols 1 through 4 as numerals for the numbers one through four;

e.g.,

1, 2, 3, 4

(2) S, (1) Q, □, (3) △, (4)

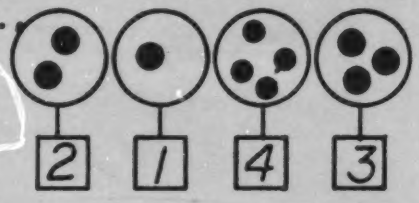
0.01.07.03 write the numerals 1 through 4;

e.g.,

1 , 1 2 , 2 3 , 3 4 , 4

0.01.07.04 identify the number of elements in given groups (1 through 4) by counting.

e.g.,



C.01.07

VOCABULARY

TERMS	**SYMBOLS**
one	1
two	2
three	3
four	4
numeral	

GETTING STARTED

Prepare and distribute groups of button cards showing from one to four buttons and a box of four buttons to pairs of students. Direct pupils to recreate the same amount of buttons as each card displays. Match the buttons to the card. Continue until each pupil has had an opportunity to create a group of from one to four buttons.

Display one pencil. Say, "Show as many of your finger(s) as the amount of objects that I am showing you." Match the objects to each student's fingers to provide visual reinforcement. Repeat this procedure until one to four objects have been shown and displayed by pupils.

0.01.07

0.01.07.01 associate the numerals 1 through 4 with a group (set, bunch, heap, pile) having one through four objects

STRATEGY 1: Prepare a large numeral 2 card. Display it beside a discovery box containing a variety of groups of 1-4 identical objects, e.g., 2 mittens, 2 socks, 3 crayons ... Say, "This is the numeral 2. Look in your discovery box and find a group of objects that will match this card." Pupils should match the group of two mittens to the numeral 2 card. Continue to find other groups of 2 objects in the discovery box and match them to the numeral 2 card.

Repeat this procedure with groups of one through four matching objects.

STRATEGY 2: Provide each student with four discs and numeral cards 1-4. Show the numeral 1 card and say, "This card says one. Put one disc in front of you." Check to see that each student has put one disc in front of him/herself. Repeat this procedure for the other numeral cards.

0.01.07.02 recognize and identify the symbols 1 through 4 as numerals for the numbers one through four

STRATEGY 1: Display large objects on trays around the room in groups of one (two, three or four) objects and numeral cards 1 (2, 3, 4). Say, "I have placed

STRATEGY 1: cont'd

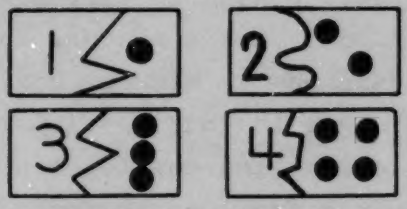
1 object on trays around the room. When you find a tray, count the object. Then take a numeral 1 card from the table and place it on the tray. The numeral card says how many objects you have found." Demonstrate. Ask a team of three students to work together at the tray hunt. Repeat this procedure for the numerals 2, 3 and 4.

STRATEGY 2:

Prepare a set of puzzle cards with 1-4 discs pasted on them and the numerals 1-4. Cut each card free form. Place cards on the table face down in random order.

Demonstrate and say, "I found one disc. Let's count. Complete the puzzle by finding the correct numeral that matches the amount of discs. When you have found the numeral card 1, match your puzzle pieces."

e.g.,



Repeat this procedure until all puzzle pieces have been matched.

0.01.07.03 write the numerals 1 through 4

STRATEGY 1:

Distribute to each group of pupils, sandpaper (yarn, button) numeral cards 1 through 4. Say, "You have sandpaper numerals. Use your finger to trace the numerals." Demonstrate with each numeral.

STRATEGY 2:

Write a large numeral 1 on the chalkboard or easel. Say, "This is a numeral 1. Let's trace it." Demonstrate writing each numeral while reciting this rhyme:

0.01.07

STRATEGY 2: cont'd

A straight line down is one,
Writing one is fun.
Around the track and back,
Two, Two, Two (2).
Around the tree, around the tree,
That's the way we make a three (3).
Down and across and down some more,
That's the way we make a four (4).

0.01.07.04 identify the number of elements in given groups (1 through 4) by counting

STRATEGY 1: Prepare and distribute groups of one to four objects placed in envelopes, boxes or bags to each student. Ask a student the name of the objects he/she has in his/her envelope. Say, "How many cars are in your envelope?" Repeat this procedure by exchanging envelopes so that each student has counted from one to four objects.

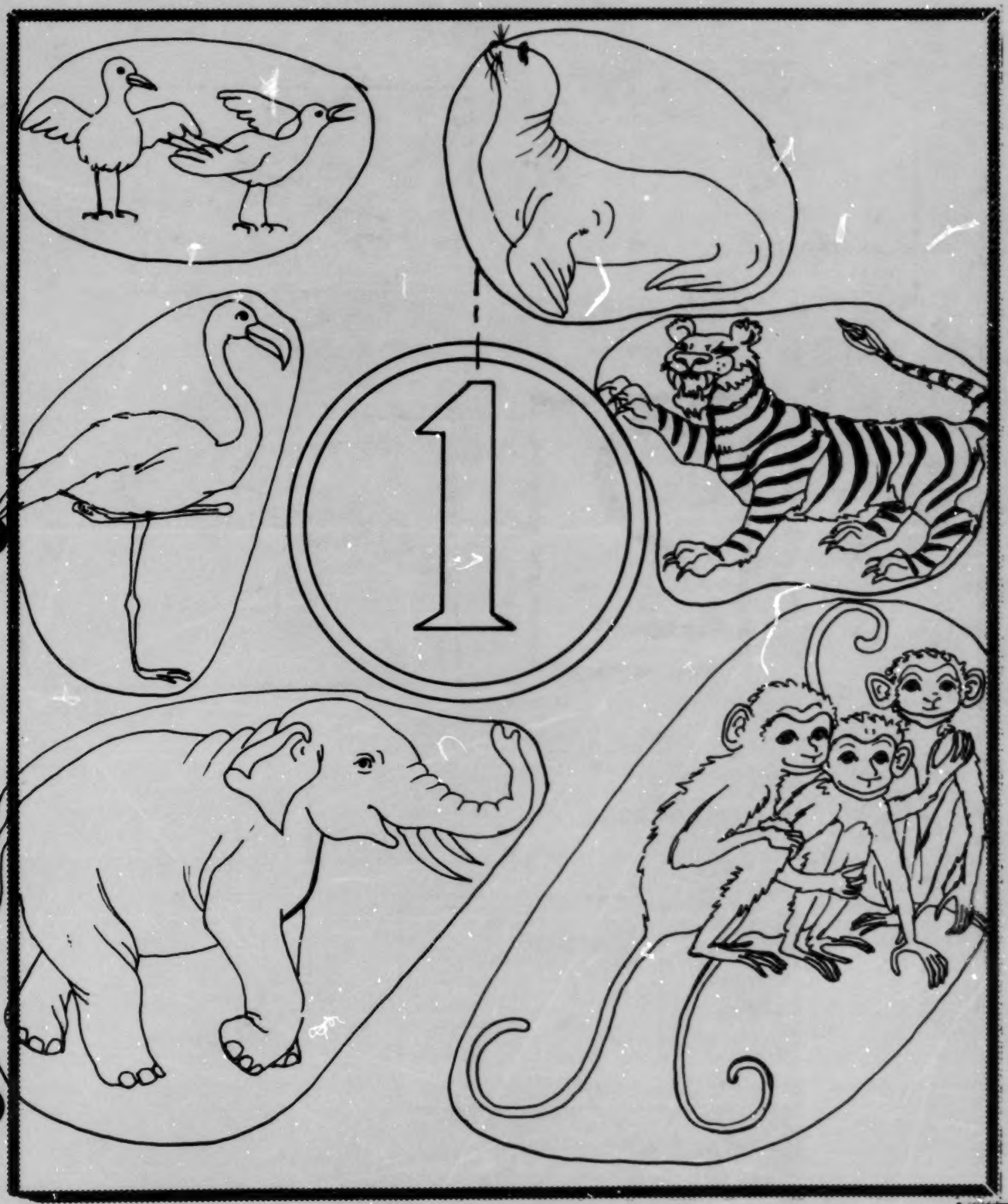
STRATEGY 2: Prepare four trays labeled with a large numeral 1, 2, 3 or 4. Distribute a group of 1-4 discs in a cup to each pupil. Say, "Count the number of discs in your cup. How many discs did you count? If you have only one disc, you may place your cup on this tray labeled 1." Demonstrate.

Repeat this procedure for pupils who have counted two through four discs.

P.O. 0.01.07.01

NAME: _____ CLASS: _____

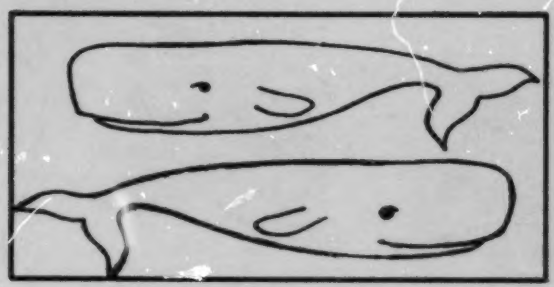
Draw a line from the numeral 1 to each picture that shows one animal.



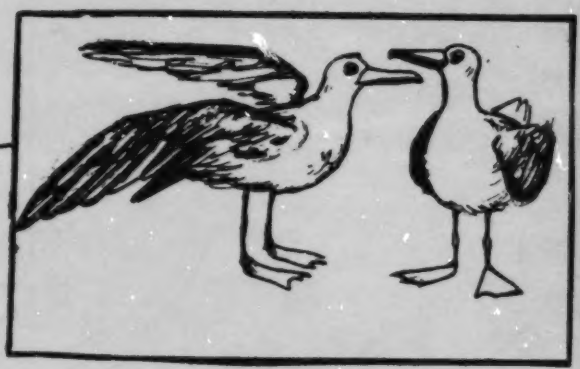
P.O. 0.01.07.01

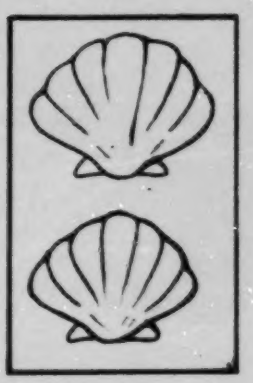
NAME: _____ CLASS: _____

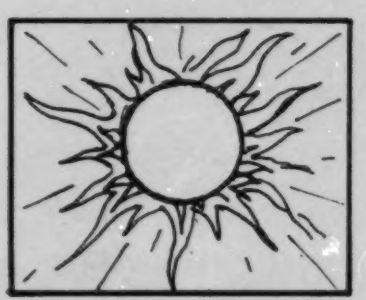
Draw a line from groups of 2 to the numeral 2.

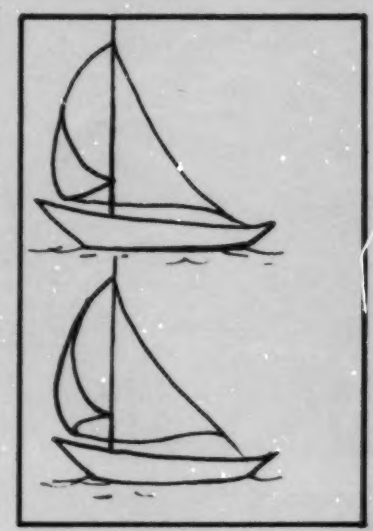


2



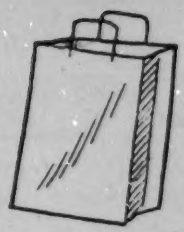




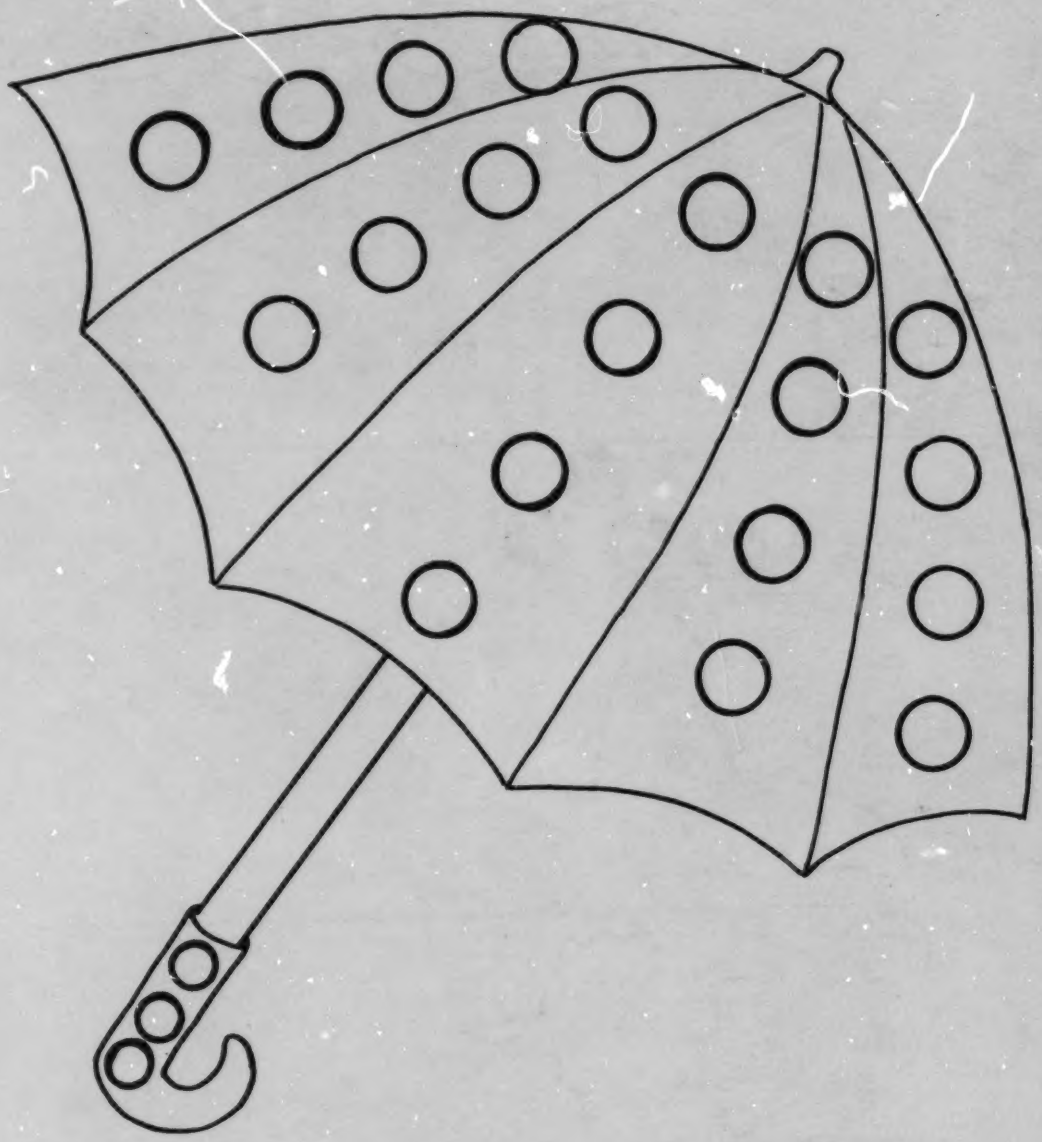


P.O. 0.01.07.01

NAME: _____ CLASS: _____



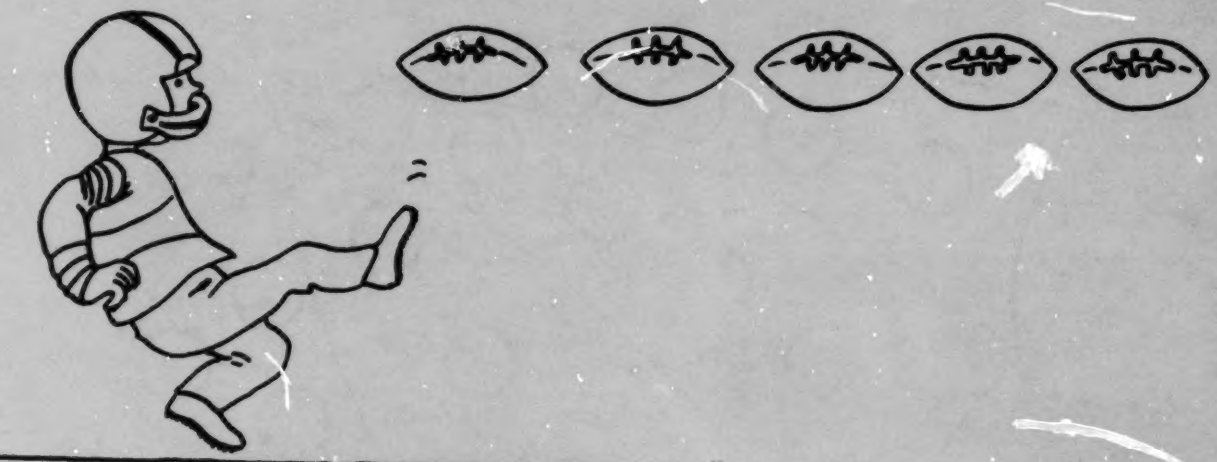
Color 3 dots in each part of the umbrella.

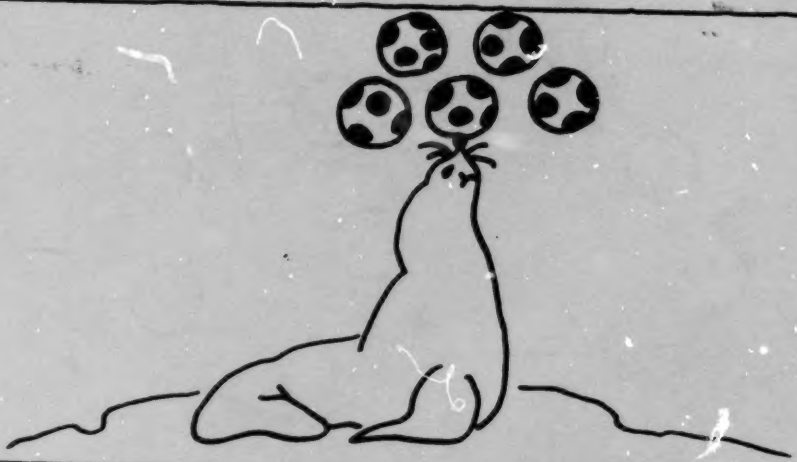


P.O. 0.01.07.01

NAME: _____ CLASS: _____

Color four balls in each picture.

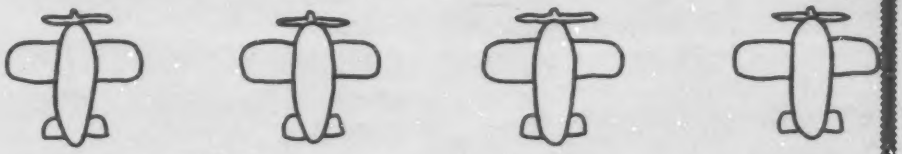




P.O. 0.01.07.01

NAME: _____ CLASS: _____

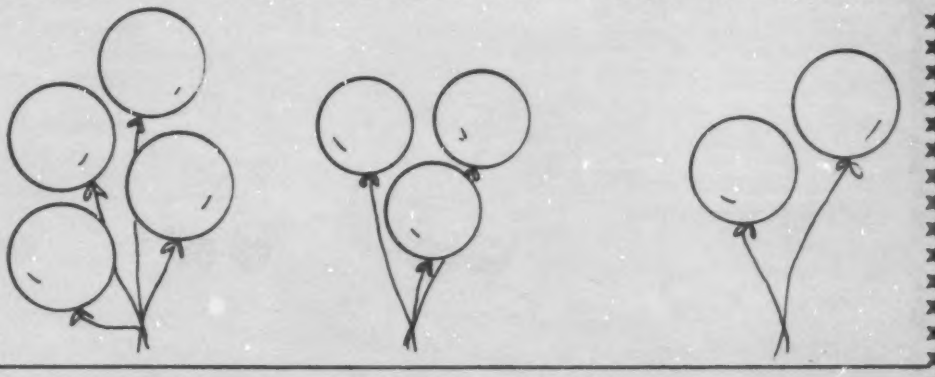
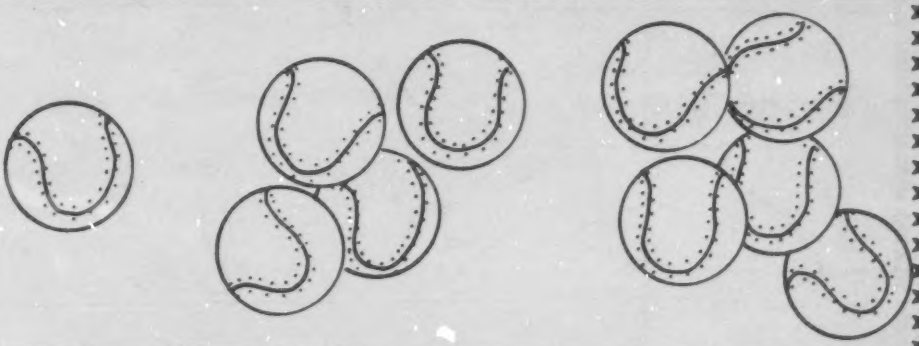
Circle the number of objects shown by the numeral.

1	
2	
3	
4	

P.O. 0.01.07.01

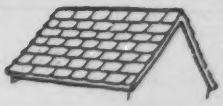
NAME: _____ CLASS: _____

Color the group that matches each numeral.

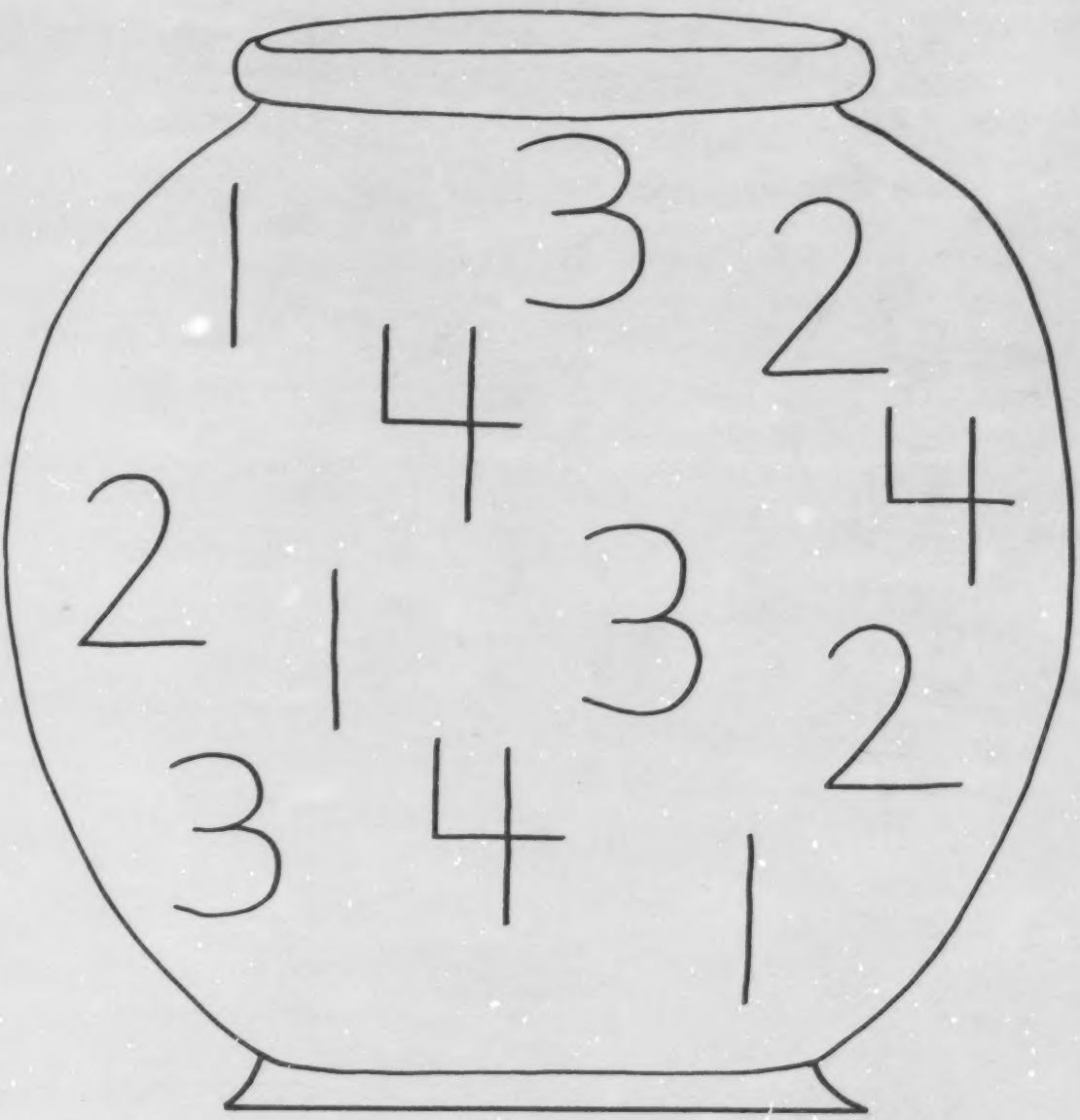
2	
4	
1	
3	

P.O. 0.01.07.02

NAME: _____ CLASS: _____



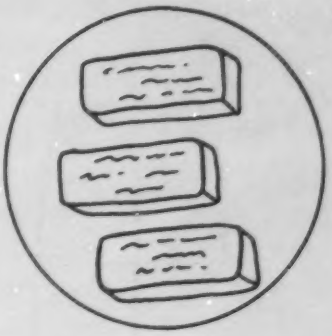
Circle each numeral 1 blue. Circle each numeral 2 red.
Circle each numeral 3 green. Circle each numeral 4 brown.



P.O. 0.01.07.02

NAME: _____ CLASS: _____

Draw a line from each group to the box which tells how many are in the group.



3

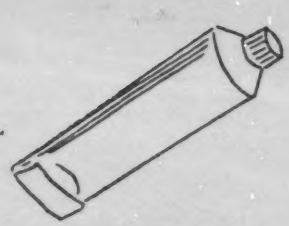
4

2

1

P.O. 0.01.07.03

NAME: _____ CLASS: _____

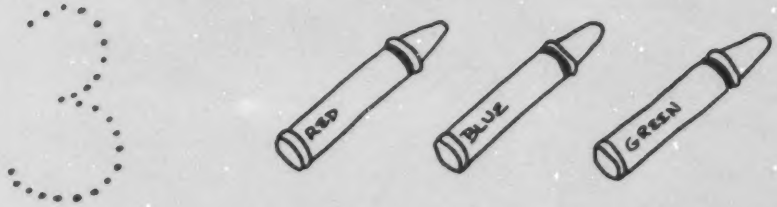


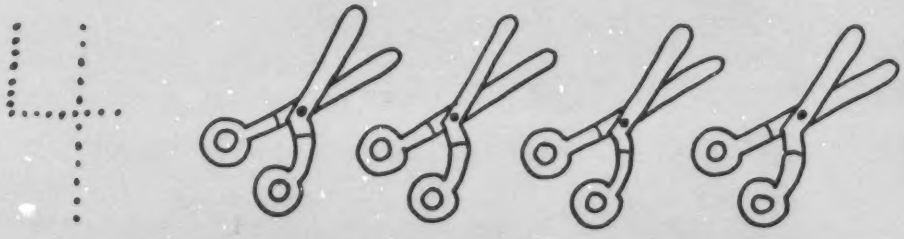
Trace the numerals.

P.O. 0.01.07.03

NAME: _____ CLASS: _____

Write the numeral which shows how many.

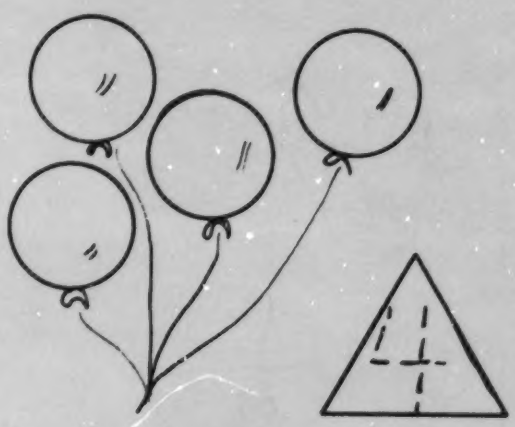


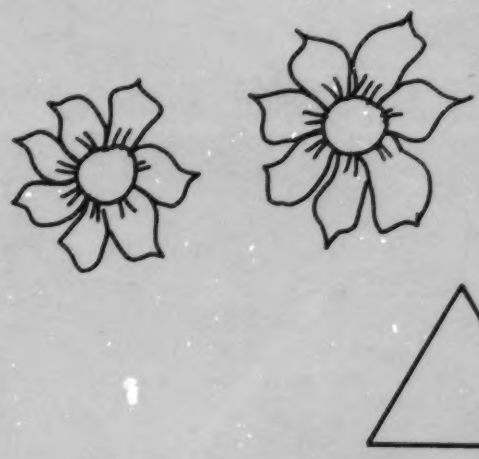


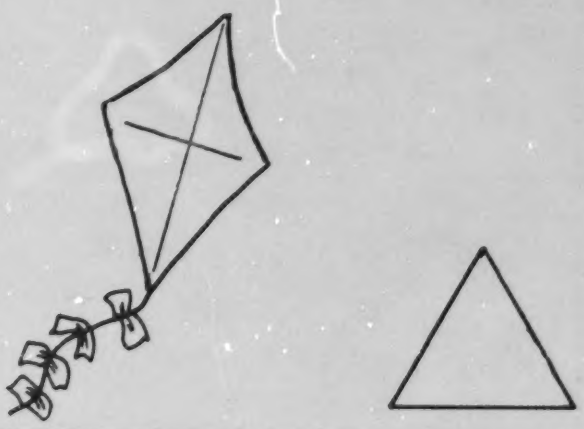
P.O. 0.01.07.03 & .04

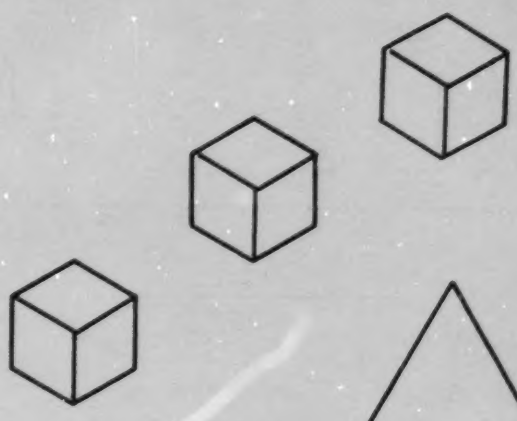
NAME: _____ CLASS: _____

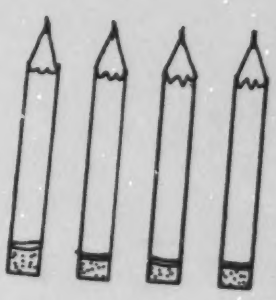
Write the numeral for the amount of objects in each group.

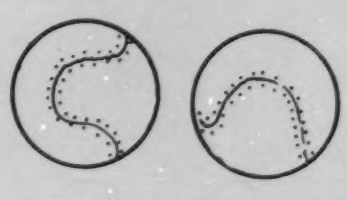








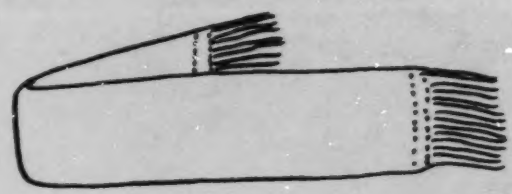




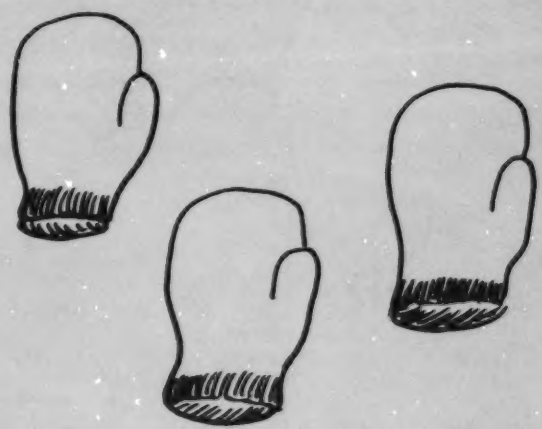
P.O. 0.01.07.04

NAME: _____ CLASS: _____

Circle the numeral that tells how many are in each group.

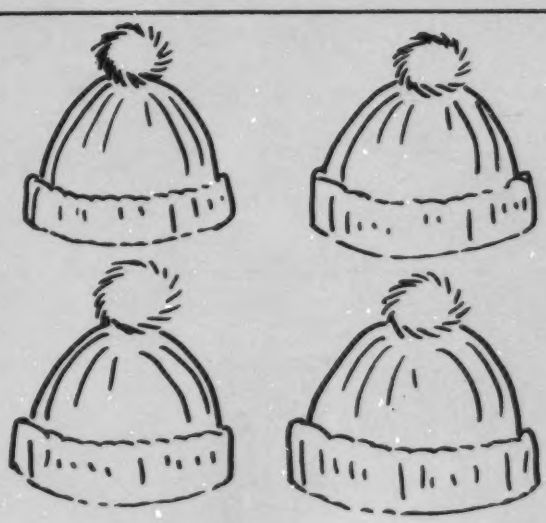


1 2 3 4



1 2 3 4

1 2 3 4



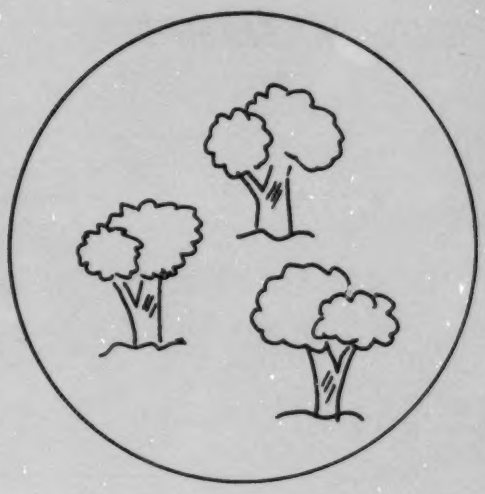
1 2 3 4

P.O. 0.01.07.04

NAME: _____ CLASS: _____

Circle the numeral which tells how many objects are in the group.

1 2 3 (4)



1 2 3 4

1 2 3 4

1 2 3 4

0.10.01 NONSTANDARD MEASUREMENT

(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.10.01.01 measure the length and/or height of objects using nonstandard units of measure;
e.g.,

How many key lengths do you need to measure this book?

0.10.01.02 measure the capacity of objects using nonstandard units of measure;
e.g.,

How many bowlfuls would it take to fill this pail?

0.10.01.03 define and compare nonstandard measurements of weight.
e.g.,

Which pan on the scale is holding the heavier object?

0.10.01

VOCABULARY

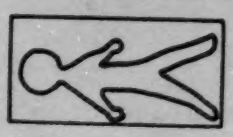
TERMS

long	heavy
length	heavier
tall	light
height	lighter
empty	estimate
full	
high	

GETTING STARTED

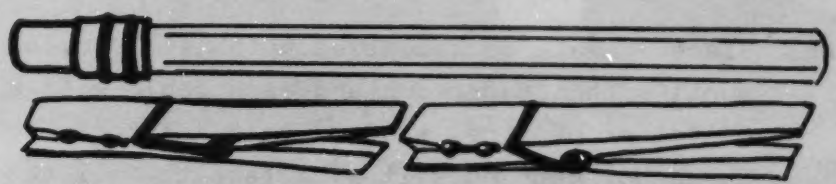
Prepare a large sheet of brown paper for each student. Say, "Lie down on the paper so that I may trace your outline. Color your outline and cut it out."

e.g.,



Ask students to estimate how many of the class body outlines cut-outs it will take to go from one end of the room to the other when placed end to end. Record student estimates on the chalkboard. Place the cut-outs across the length of the room to determine an approximate answer.

Distribute bags of clothespins and a pencil to each student. Ask students to guess how many clothespins it will take to go from one end of the pencil to the other when placed end to end. Say, "Let's place them end to end next to the pencil. How many clothespins did you need to measure your pencil?" Make sure students align the clothespins and pencils properly. Repeat this procedure using clothespins to measure other objects.



0.10.01

0.10.01.01 **measure the length and/or height of objects using nonstandard units of measure**

STRATEGY 1: Distribute popsicle sticks or tongue depressors to each pupil. Encourage pupils to estimate the number of sticks it takes to make a line across the length of their shoe when the sticks are placed end to end. Record the pupils' names and estimates. Ask each pupil to place the sticks end to end across their shoe. Say, "How can we tell how long your shoe is?" Count the sticks, touching each stick as the number is said. Repeat this procedure measuring other objects, e.g., the length of a book or a seat.

STRATEGY 2: Display paper towel tubes and place double stick tape on the side of the teacher's desk. Say, "How can we find out how high the teacher's desk is using the paper tubes? Where do we begin our measurement? Begin at the bottom of the leg and continue to the top. Stack the tubes in a straight line so that each tube is placed at the end of the last tube. Continue until the line of paper tubes is close to the top. How do we know where to stop? How many tubes high is the desk?" Repeat this procedure to measure the height of other objects, e.g., chairs, bookcases.

0.10.01.02 **measure the capacity of objects using nonstandard units of measure**

STRATEGY 1: Place a small bucket at each table. Provide each pupil with a paper cup and each table with a large container of rice, sand or salt. Ask each pupil to guess how many cups it will take to fill the

STRATEGY 1: cont'd

bucket. Record their guesses on a chart. Say, "Empty your cup into the bucket as your group keeps count. Fill your bucket to the top." Compare each group's actual count to their guesses.

STRATEGY 2:

Distribute a small box and some cubes to each student. Say, "Fill your box with cubes. Keep count of the number of cubes which fit in your box." Ask each student to fill boxes of varying sizes. Say, "In which box were you able to place the most/least amount of cubes?"

0.10.01.03 define and compare nonstandard measurements of weight (heavy/heavier, light/lighter)

STRATEGY 1:

Prepare 4 one pound coffee cans filled with either lima beans, styrofoam, pebbles, or paper clips and four clear plastic lids. Ask each student to hold the can of beans and say, "Does the can feel heavy or light?" Ask each student to hold the can of styrofoam and say, "How does this can feel?" Students should hold both cans and make weight comparisons. Say, "Which can is heavier? Which can is lighter?" Accept all responses using the terms heavy/heavier and light/lighter.

Repeat this procedure using different combinations of coffee cans.

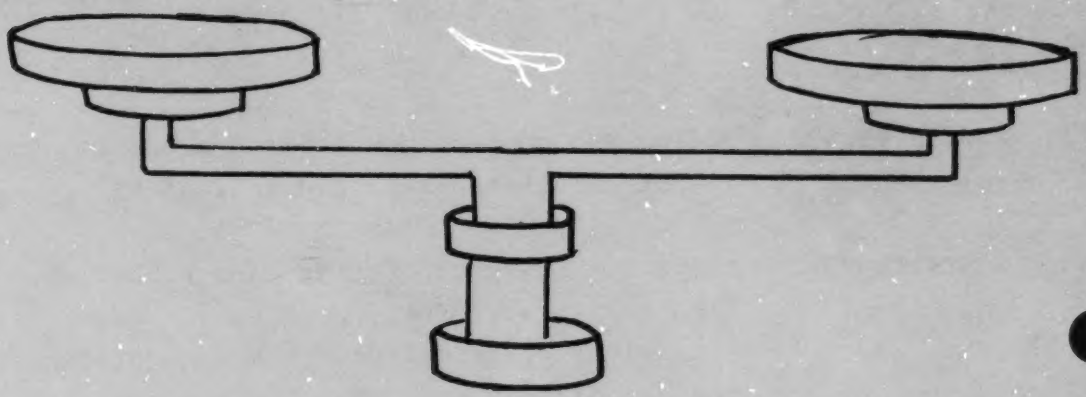
STRATEGY 2:

Prepare a two pan balance scale. Distribute a block and crayon to each student. Say, "Hold the block in one hand and the crayon in the other hand. Which object feels heavier? Which object feels lighter?"

STRATEGY 2: cont'd

On the balance scale, place a block on one pan and a crayon in the other pan. Say, "How can we tell which is the heavier object? (The heavier object makes the pan go down.) Which is the lighter object?"

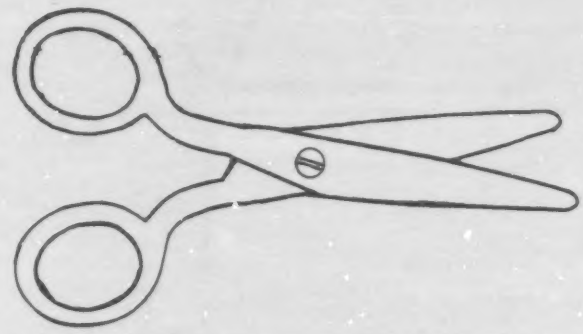
Repeat this procedure using other pairs of objects.

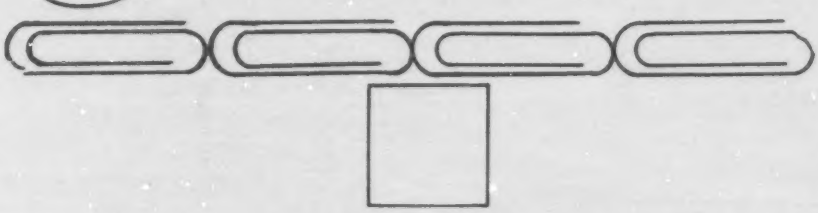


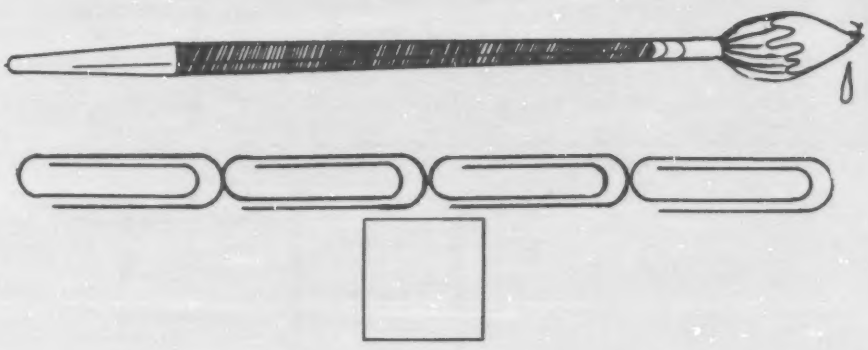
P.O. 0.10.01.01

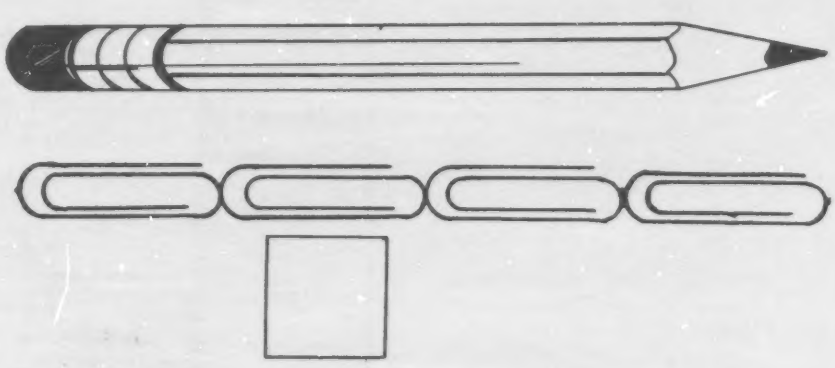
NAME: _____ CLASS: _____

How many paper clips long is each object?



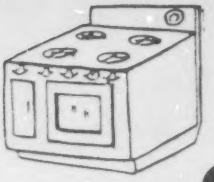




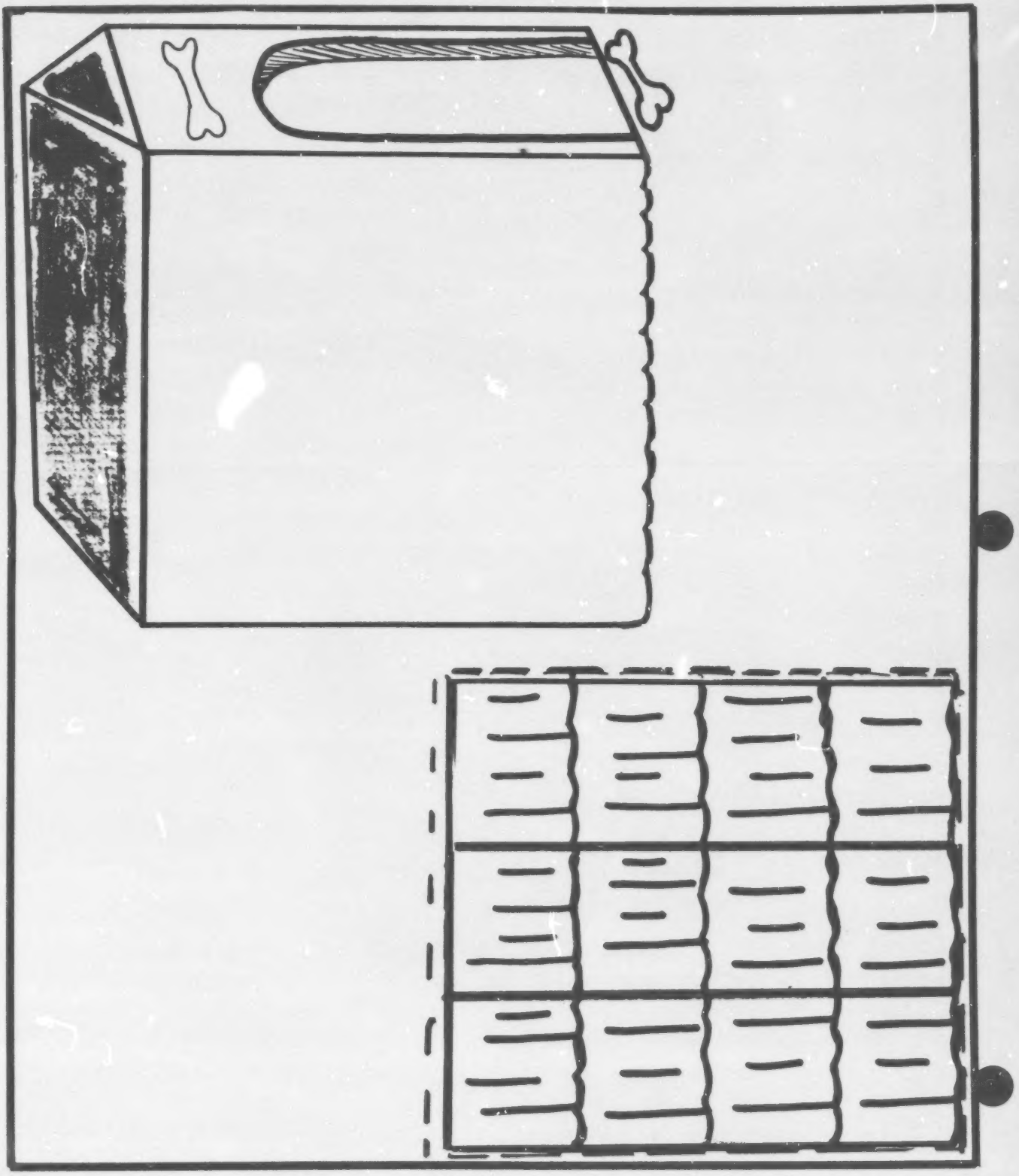


P.O. 0.10.01.01

NAME: _____ CLASS: _____



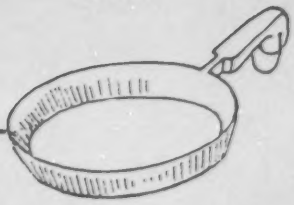
Cut and paste the shingles on the doghouse.
How many shingles long is the doghouse ?
How many shingles high is the doghouse ?



P.O. 0.10.01.02

NAME: _____ CLASS: _____

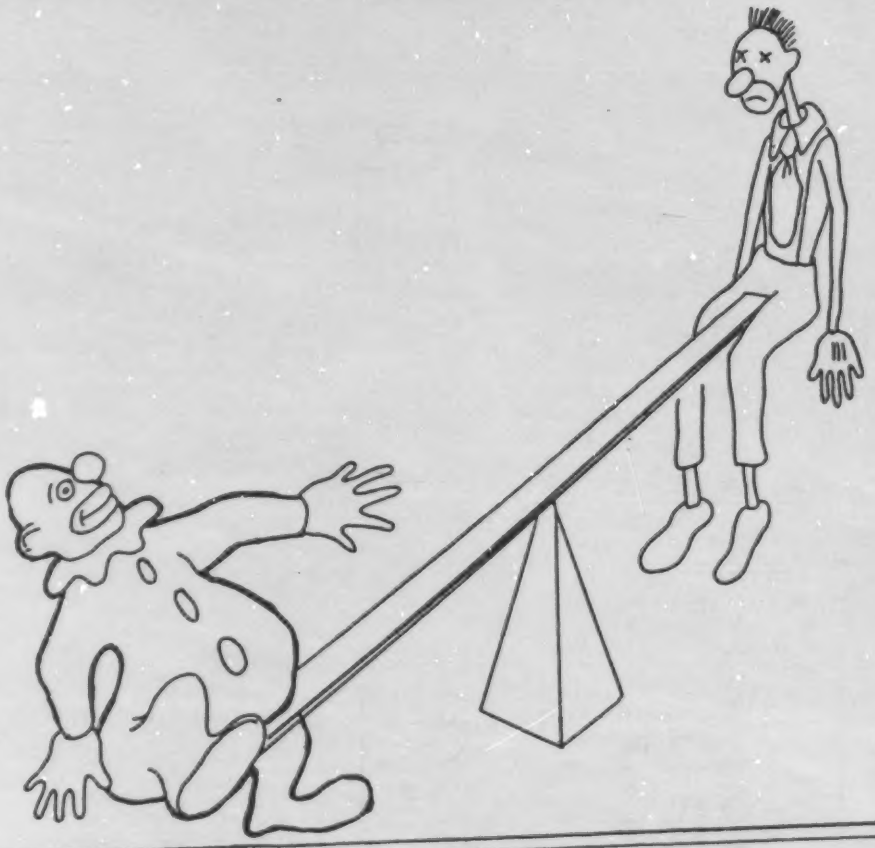
Color the containers which hold the most.
X the containers which hold the least.

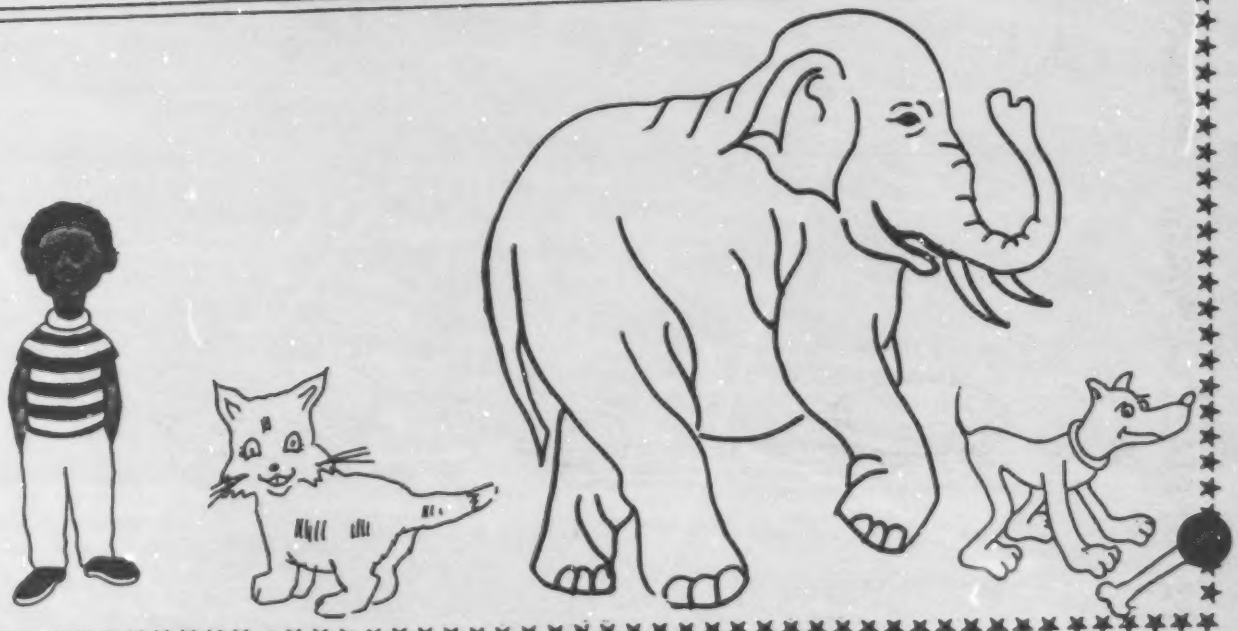


P.O. 0.10.01.03

NAME: _____ CLASS: _____

Color the heavier clown red and the lighter clown purple.
Color the animal(s) which is (are) heavier than the boy.





0.10.02 WEIGHT

(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.10.02.01 distinguish between the concepts of heavy and light;
e.g.,

Is a feather heavy or light?

0.10.02.02 compare objects that weigh more or less and the same as.
e.g.,

A stick of chalk weighs less than a chalkboard eraser. A chalkboard eraser weighs the same as a pair of scissors.

How do a chalkboard eraser and a pair of scissors compare in weight? They are the same. How do we know they weigh the same?

VOCABULARY

TERMS

scale	heavy/light
same	more/less
weigh	heavy/heavier
weight	light/lighter
balanced	

GETTING STARTED

Prepare a mail bag/basket containing envelopes and packages. Ask each student to pretend to be a letter carrier with a sack full of mail. Say, "There are letters, magazines, and packages in your mail bag. It is very heavy to carry. You make your first stop at a building that has many families. You put the letters and magazines into the boxes. Then you go upstairs to deliver the packages. What happens to your bag of mail? (It is lighter because some of the mail has been distributed.) Let's continue bringing the mail to the houses." Continue role playing the mail carrier until the bag is empty.

Place two piles of cubes on a table so that one pile has many more cubes than the other. Say, "Here are two piles of cubes. How are the piles different?" Put the piles into separate bags. Say, "Which bag feels heavier?" Demonstrate using a balance scale. Say, "How do we know whether we guessed correctly?"

0.10.02

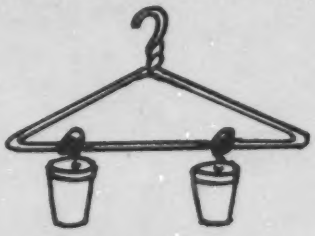
0.10.02.01 distinguish between the concepts of heavy and light

STRATEGY 1: Distribute one block and a piece of paper to each student. Say, "Hold a block in one hand and the paper in the other hand. (Demonstrate.) Which is heavy? (the block) Which is light?" (the paper) Repeat this procedure using other pairs of objects.

STRATEGY 2: Prepare two similar boxes or bags so that one has heavy blocks in it and the other has styrofoam packing material. Place these boxes on the table. Say, "How can we tell which box is heavy and which is light?" Elicit that the boxes should be lifted. Ask the students to guess which box has the heavy object(s). Ask each student to hold both boxes to test which box has the heavy object(s).

0.10.02.02 compare objects that weigh more or less and the same as

STRATEGY 1: Assist students in making their own balance scale using a wire coat hanger. Hang styrofoam cups or margarine tubs with bent paper clips from the hanger. Use tape to prevent sliding.
e.g.,



Prepare several objects to be weighed, e.g., crayons, paper clips. Each student should select

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STRATEGY 1: cont'd

two objects and estimate which weighs more or whether they weigh the same. Ask the students to predict what will happen to the scale when each object is placed in the cup and have them do the experiment. Repeat this procedure using several pairs of objects.

STRATEGY 2:

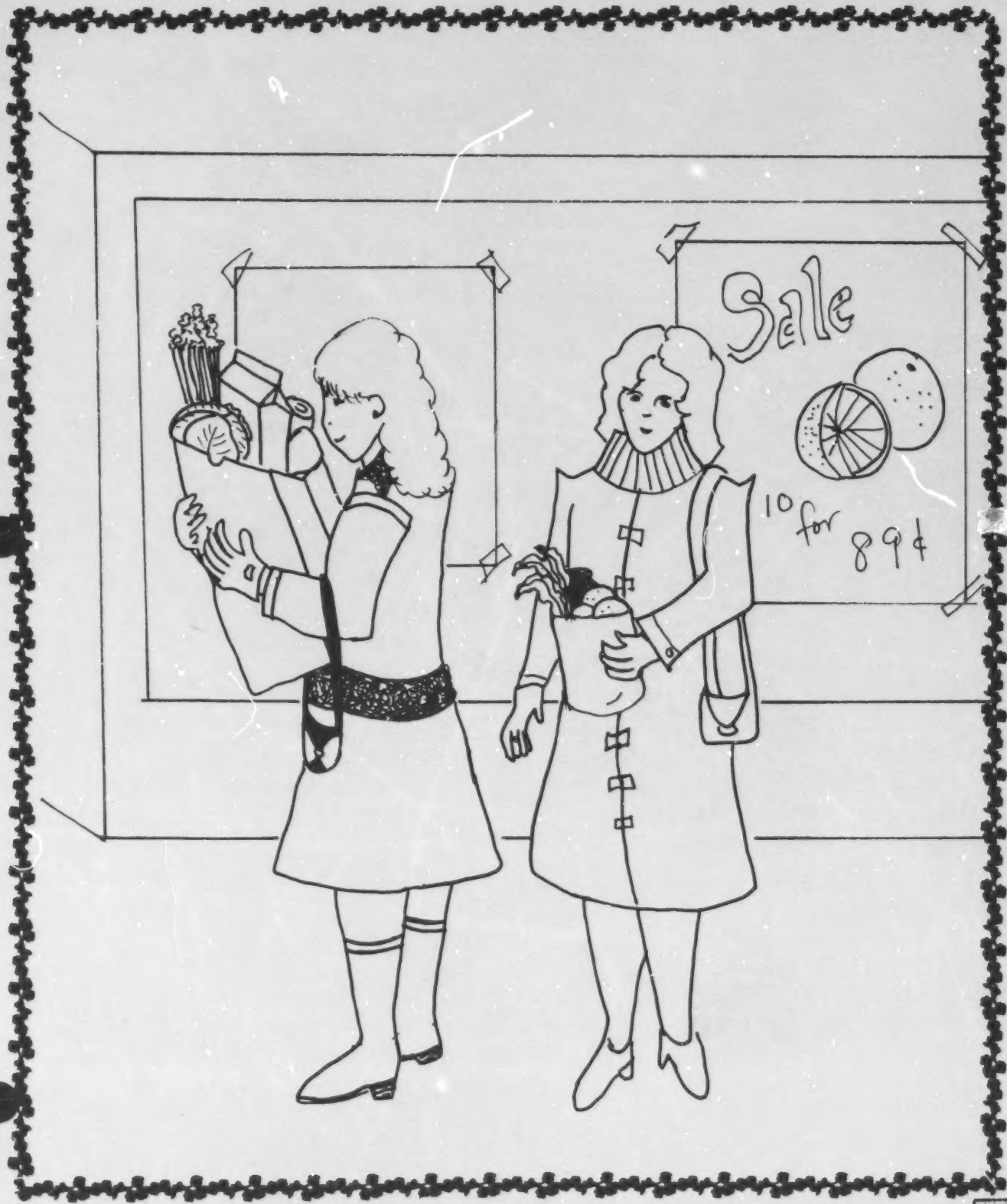
Prepare a set of four different colored paper cups (red, orange, blue and green) for each group. Completely fill the red and orange cups with beads. Fill the blue cups halfway with beads. Fill the green cups a fourth of the way with beads.

Distribute one red, one blue and one green cup to small groups of students. Say, 'Pick up the blue cup. (Make sure that each student has a chance to hold the cup.) Pick up the red cup. Hold one cup in each hand. What is different about the two cups? The blue cup weighs less than the red cup. The red cup weighs more than the blue cup." Compare the orange and red cups." (They both weigh the same.) Repeat this procedure by comparing other combinations of containers.

P.O. 0.10.02.01

NAME: _____ CLASS: _____

X the package which is lighter. Color the package which is heavier.



P.O. 0.10.02.02

NAME: _____ CLASS: _____

Circle the pupil who weighs more.
X the pupil who weighs less.

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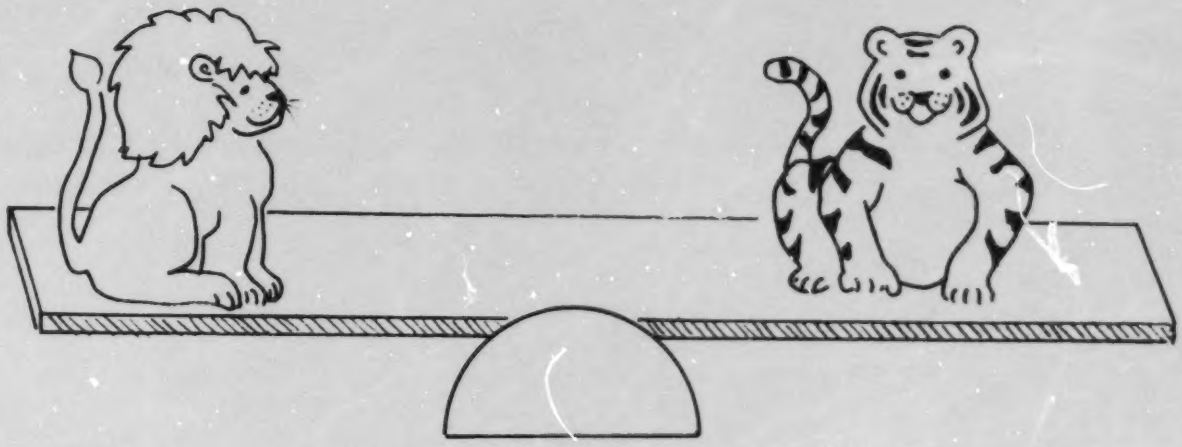
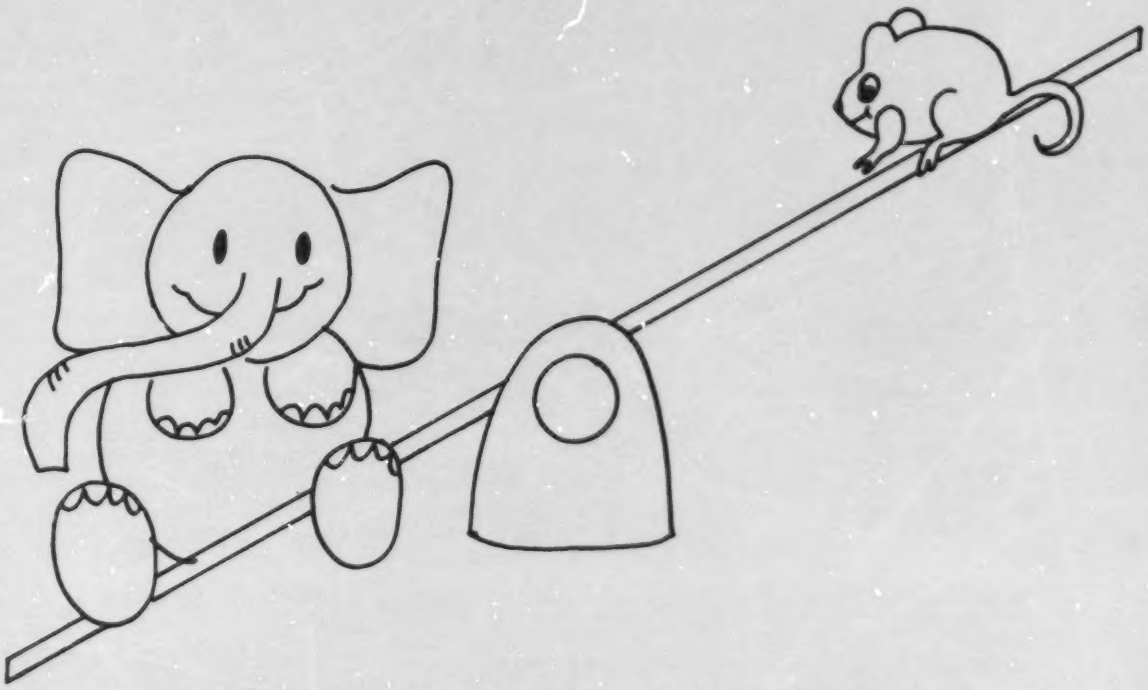
P.O. 0.10.02.02

NAME: _____ CLASS: _____

Color the animals that weigh the same blue.
Color the animals that do not weigh the same yellow.



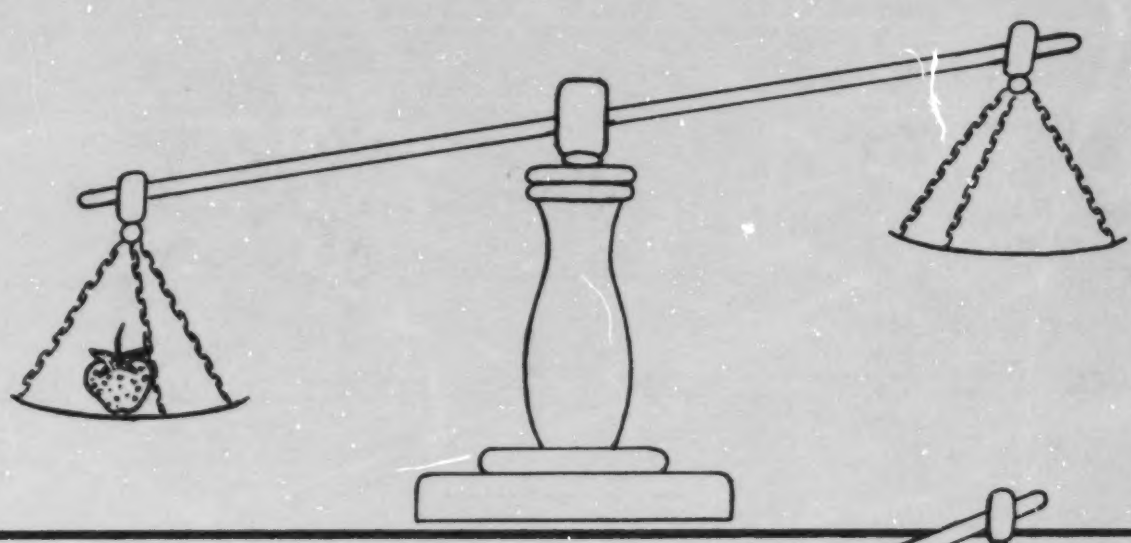


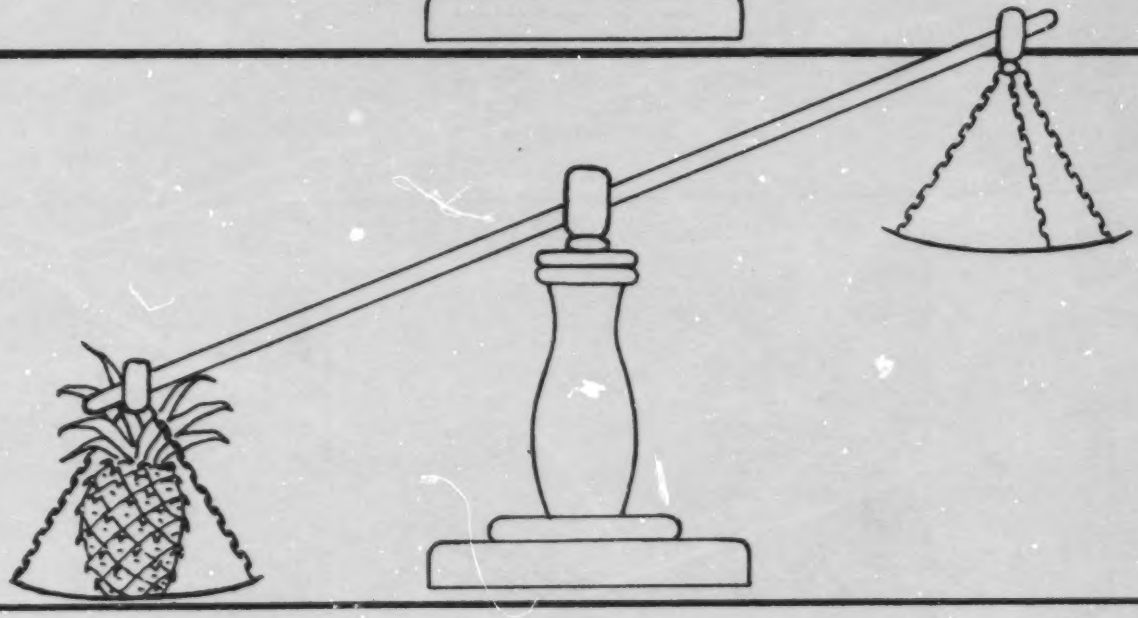
P.O. 0.10.02.02

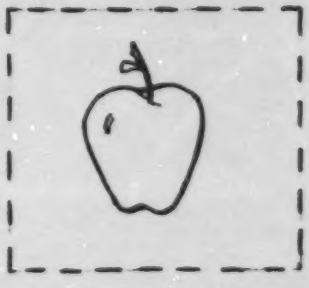
NAME: _____ CLASS: _____

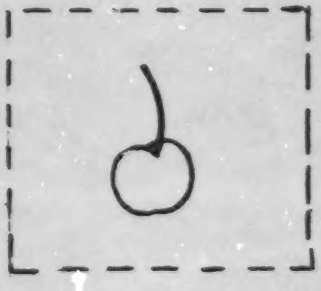
Cut and paste the fruit that weighs the same as the strawberry.

Cut and paste the fruit that weighs less than the pineapple.









0.10.03 CAPACITY OF CONTAINERS

(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.10.03.01 identify containers that are full/empty, half full/half empty;
e.g.,

0.10.03.02 distinguish among more than, less than, and the same as.
e.g.,

The bucket holds more water than the glass.

0.10.03

VOCABULARY

TERMS

empty
full
half full
half empty
more
less

GETTING STARTED

Dramatize the song, "Paw Paw Patch". Say, "A paw paw is a fruit we know as the papaya."

Where oh where is sweet little Maria?
Where oh where is sweet little Maria?
Where oh where is sweet little Maria?
Way down yonder in the paw paw patch.
Picking up paw paws,
Put 'em in your pocket
Picking up paw paws
Put 'em in your pocket.
Picking up paw paws
Put 'em in your pocket
Way down yonder in the paw paw patch.

Place a pile of discs on a desk. Students should pick a small handful of discs, put them on their desk, and compare the amounts. Say, "Who has more than Maria? Which students have the same amount as Maria? Who has less? Who has the most? Who has the least?"

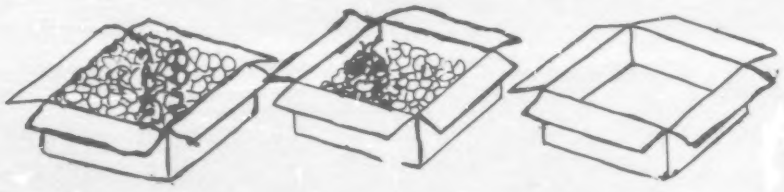
Set up a water corner with a water tray, trough or baby's bathtub to hold the water. Place plastic containers, squeeze bottles, strainers, pails, scoops and spoons in the water tray. Select two or three pupils to fill containers at the water tray. Ask the pupils to fill and empty containers.

0.10.03

0.10.03.01 identify containers that are full/empty, half full/half empty

STRATEGY 1: Prepare and display 3 gift boxes containing cereal, rice or other small objects. One box full, one empty and one half empty. Ask three students to choose one box. Say, "One box is full, one box is empty, and one box is not full but not empty either." Ask the students to examine each box by opening it and looking inside. Ask the first student, "Which box did you choose?" (The box that is full.) Continue this for the other 2 boxes. Show the third box to the students. Say, "This box is not full and it is not empty. We say this box is half empty. We can also say it is half full depending on whether we expected the box to be full or empty."

STRATEGY 2: Distribute three similar boxes and large bags of packing materials to each student and display a model at the front of the room. Say, "Let's put enough packing material into the first box so it is full. Next, we will fill the second box until it is half full. We are not going to put anything in the third box." Point to the three boxes and say, "The first box is full. The second box is half full. The third box is empty." Point to box 2 and say, "We said that this box was half-full. We can also say that it is half-empty. If we expect a box or container to be full but it is only half filled, we say it is half-full." Elicit what is said if we expect a container to be empty.



0.10.03

0.10.03.02 **distinguish among more and less and the same as**

STRATEGY 1: Conduct this lesson next to a sink or over a basin. Show the students a quart container, a twelve ounce plastic bucket and two eight ounce glasses. Say, "Which containers would hold more water, which less and which would hold the same amount?"

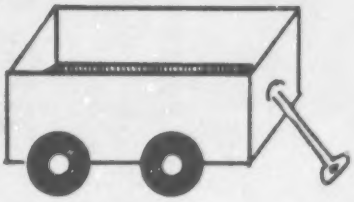
Allow the students to pour the water. Discuss what is happening as the containers are being filled to show more, less and the same as.

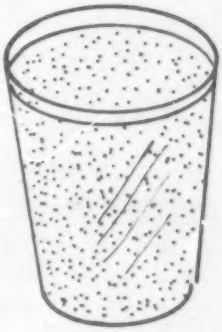
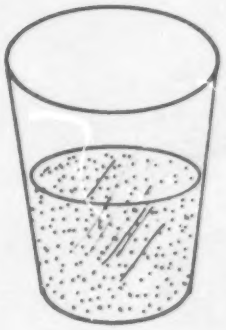
STRATEGY 2: Collect and distribute 4 identical plastic soda bottles to each group or table. One bottle should be filled halfway with water or colored liquid. Place a gummed colored paper circle on one bottle. The second bottle should be filled with the same amount of water, the third bottle with more water and the fourth bottle with less water. Say, "There is water in each of these bottles. What can you tell about the water in the bottles? (The water is higher or lower in some bottles. There is more or less water in some bottles.) Find the bottle with the paper circle. Which bottle(s) have the same amount of water as the bottle with the circle? How do you know? (The lines are the same when the bottles are next to each other.) Which bottles have different amounts of water than the bottle with the red circle?" Change bottles so that some students have only bottles with the same amounts or only bottles with different amounts and repeat your questions.

P.O. 0.10.03.01

NAME: _____ CLASS: ____

Circle the empty wagon.
Circle the full plate.
Circle the half full glass.

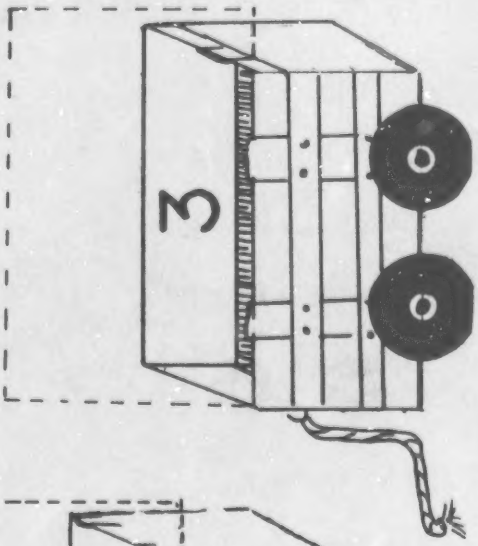


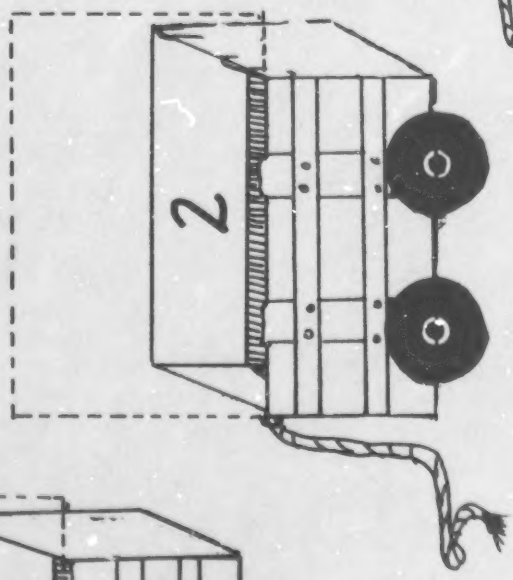



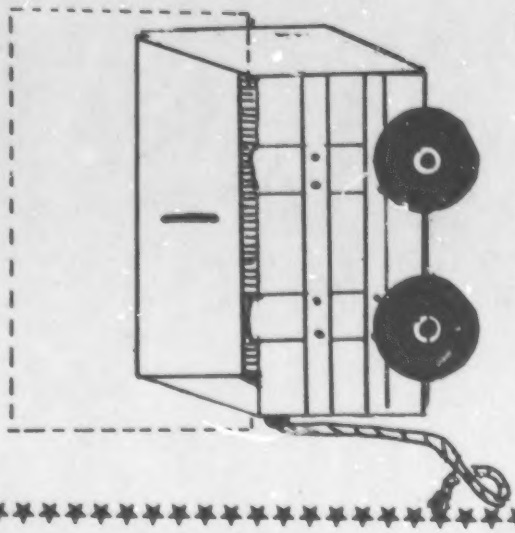
P.O. 0.10.03.01

NAME: _____ CLASS: _____

Cut. Paste the toys so that wagon 1 is full, wagon 2 is half full and wagon 3 is empty.







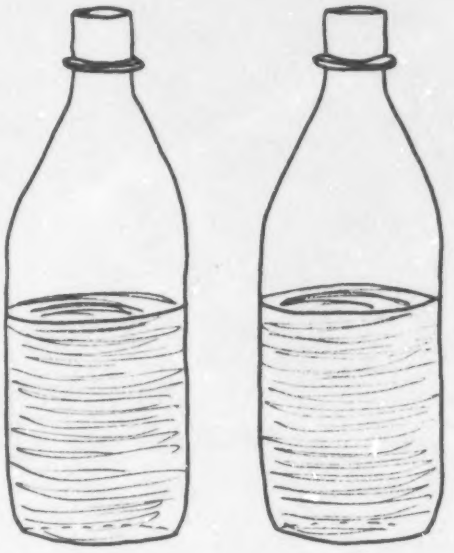
168

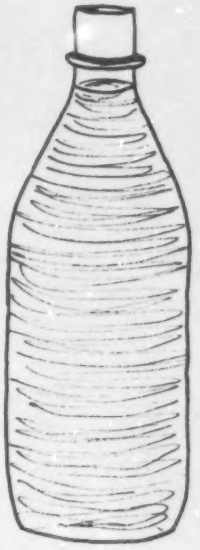
167

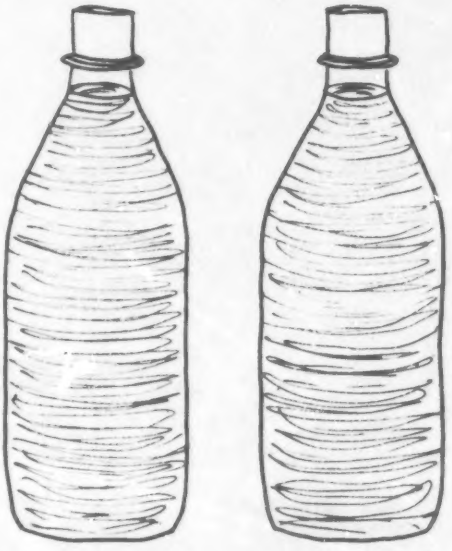
P.O. 0.10.03.01

NAME: _____ CLASS: _____

Cut and paste the bottles so that the top group of bottles shows half full or half empty and the bottom row shows full.





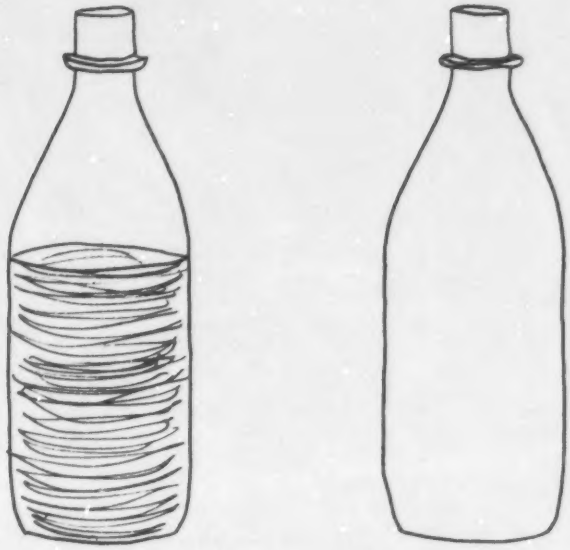


P.O. 0.10.03.02

NAME:_____ CLASS:_____

1. Color the empty bottle to show an amount that is less.
2. Color the empty glass to show an amount that is more.

1



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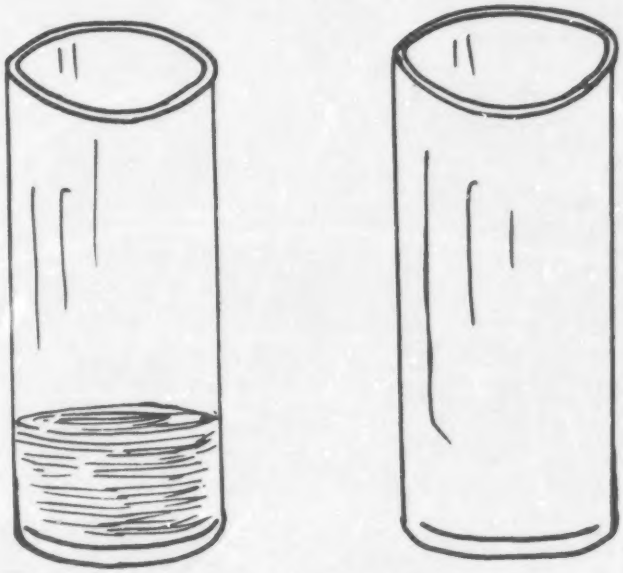
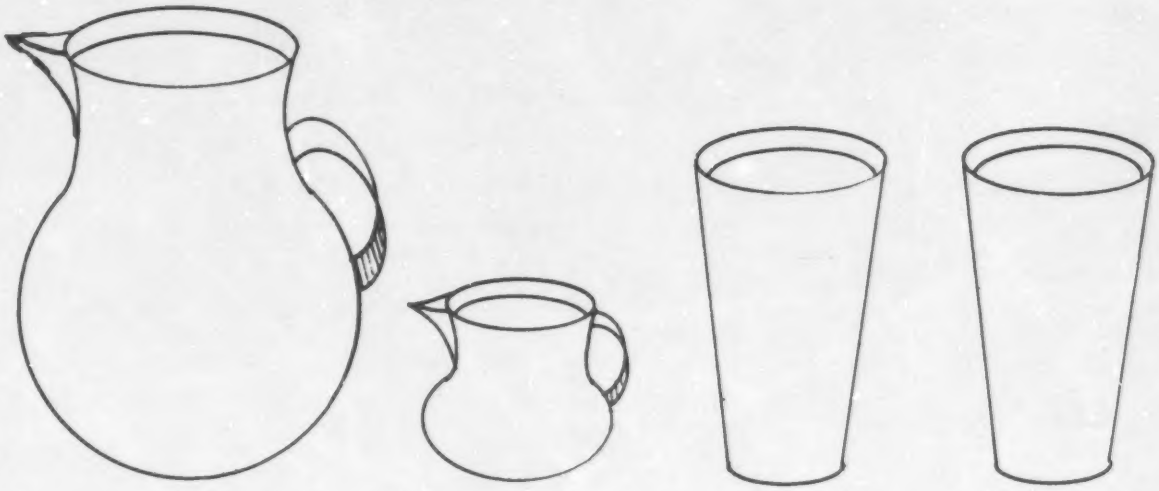
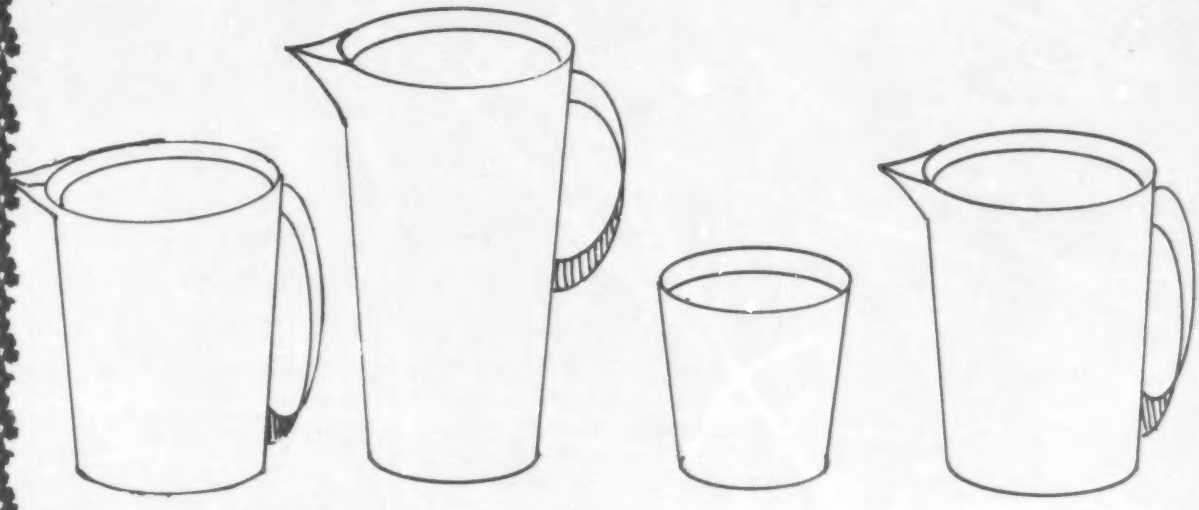


P.O. 0.10.03.02

NAME: _____ CLASS: _____

Color the containers which hold more red.
Color the containers which hold less blue.
Color the containers which hold the same amount yellow.





0.10.04 TIME OF DAY

(2 lessons/ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

0.10.04.01 recognize times of the day - morning, noon, afternoon and night;
e.g.,

We come to school in the morning.
The sun is hottest at noon.
We go home from school in the afternoon.
We eat dinner at night.

0.10.04.02 distinguish between before/after, day/night, and early/late.
e.g.,

Some of us eat breakfast before coming to school.
We play games after lunch.
We come to school during the day.
We go to sleep at night.
If you leave early, you probably will not miss your bus.
If you miss your bus, you probably will be late for school.

0.10.04

VOCABULARY

TERMS

morning	before
afternoon	after
noon	early
night	late
day	

GETTING STARTED

Prepare drawing paper and crayons for each student. Discuss times of the day. Say, "Do you eat breakfast early in the morning or late in the afternoon? Do you eat lunch after school or during school? When do you eat lunch? Do you see the sunset early in the day or late in the day? Does sunrise usually occur before you go to school or after you go to school? When do you eat supper? When do you watch TV?"

Distribute the drawing supplies. Ask the students to make pictures for a bulletin board display of things done in the:

Morning Afternoon Night

Frequently discuss the chart with the students adding more activities whenever possible.

Display 3 pictures: a youngster getting up in the morning, students going home from school and a family eating dinner. Hold up the first picture and say, "What is this boy/girl doing? (Getting out of bed) What will he/she do?" (Brush teeth, eat breakfast, get dressed) Hold up the second picture and say, "What are the students doing? (Going home from school) What will they do when they get home?" (Watch TV, play, do homework, eat supper) Hold up the third picture and say, "What is happening in this picture? (The family is eating supper.) What will they do when they finish eating?" (Wash the dishes, play, watch TV, do homework, go to sleep.)

0.10.04

0.10.04.01 **recognize the time of day - morning, noon, afternoon and night**

STRATEGY 1: Prepare pictures of a youngster getting out of bed in the morning, leaving school and the night sky. Display the picture of a youngster getting out of bed and say, "What do you see in this picture? (A boy/girl getting out of bed. The sun is shining.) We call this time of day morning. What do you do in the morning?"

Display the picture of students leaving school and say, "When do we leave school? It is afternoon. What do you do in the afternoon?"

Display the picture of the night sky and say, "When it is dark outside, we say it is night. What do you do at night?" Hold up the pictures one at a time and ask students to tell if the time of day in the picture shows morning, afternoon or night. Say, "When the sun in the sky is straight above your head, we say it is noon."

STRATEGY 2: Prepare and display pictures from magazines or newspapers which illustrate morning, afternoon and night. Paste the pictures on oaktag. Label 3 wire coat hangers morning, afternoon and night. Attach clip on clothespins to the bottom of each hanger and hang a representative picture on each.

e.g.,

Say, "Put each picture on the hanger where you think it belongs." Ask each student to explain his/her reason for placing each picture.

0.10.04

0.10.04.02 **distinguish between before/after, day/night, and on time/late**

STRATEGY 1: Say, "Watch what I do carefully. Raise your hand when you know what I am doing but don't say a word." Pantomime brushing one's teeth. Say, "What am I doing? Before I could brush my teeth, I had to do many things. What things did I have to do before I could brush my teeth?" As pupils respond (lift the toothpaste, take the cap off the tube, get my toothbrush, ...) continue the pantomime until all steps are completed which show what came before the activity of brushing teeth. Say, "Let's all do the things we must do before we can brush our teeth." Perform the pantomime as a group. Say, "Now we have brushed our teeth! What things must we do after we have brushed our teeth?" Continue pantomiming steps to be done after brushing teeth (put the cap on the toothpaste, rinse the toothbrush, ...) Repeat this procedure with other activities showing day or night and on time or late.

STRATEGY 2: Prepare pictures of outdoor day and night scenes. Display the day scene and say, "What is happening in this picture? How does the sky look?" Pupils should see the sun in the sky because the sky is light. Say, "This is a day picture." Repeat this procedure using the night scene. Emphasize the difference in the appearance of the sky by discussing the moon. Display additional pictures of day and night. Ask pupils to identify and explain the differences between day and night pictures.

Repeat this procedure with pictures that show before/after and on time/late.

P.O. 0.10.04.01

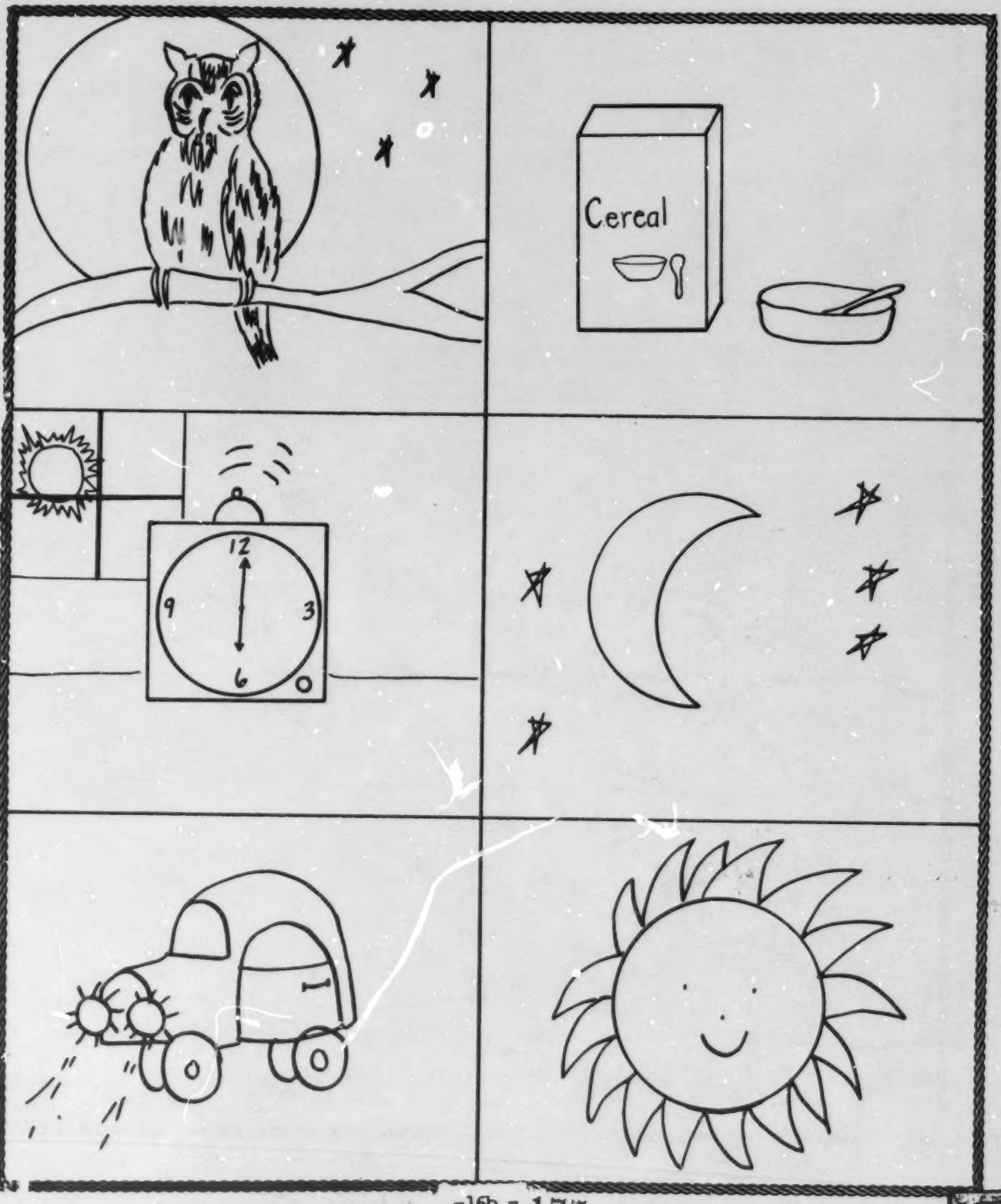
NAME:_____ CLASS:_____

Color the morning picture yellow.
Color the afternoon picture orange.
Color the night picture blue.

P.O. 0.10.04.01

NAME: _____ CLASS: _____

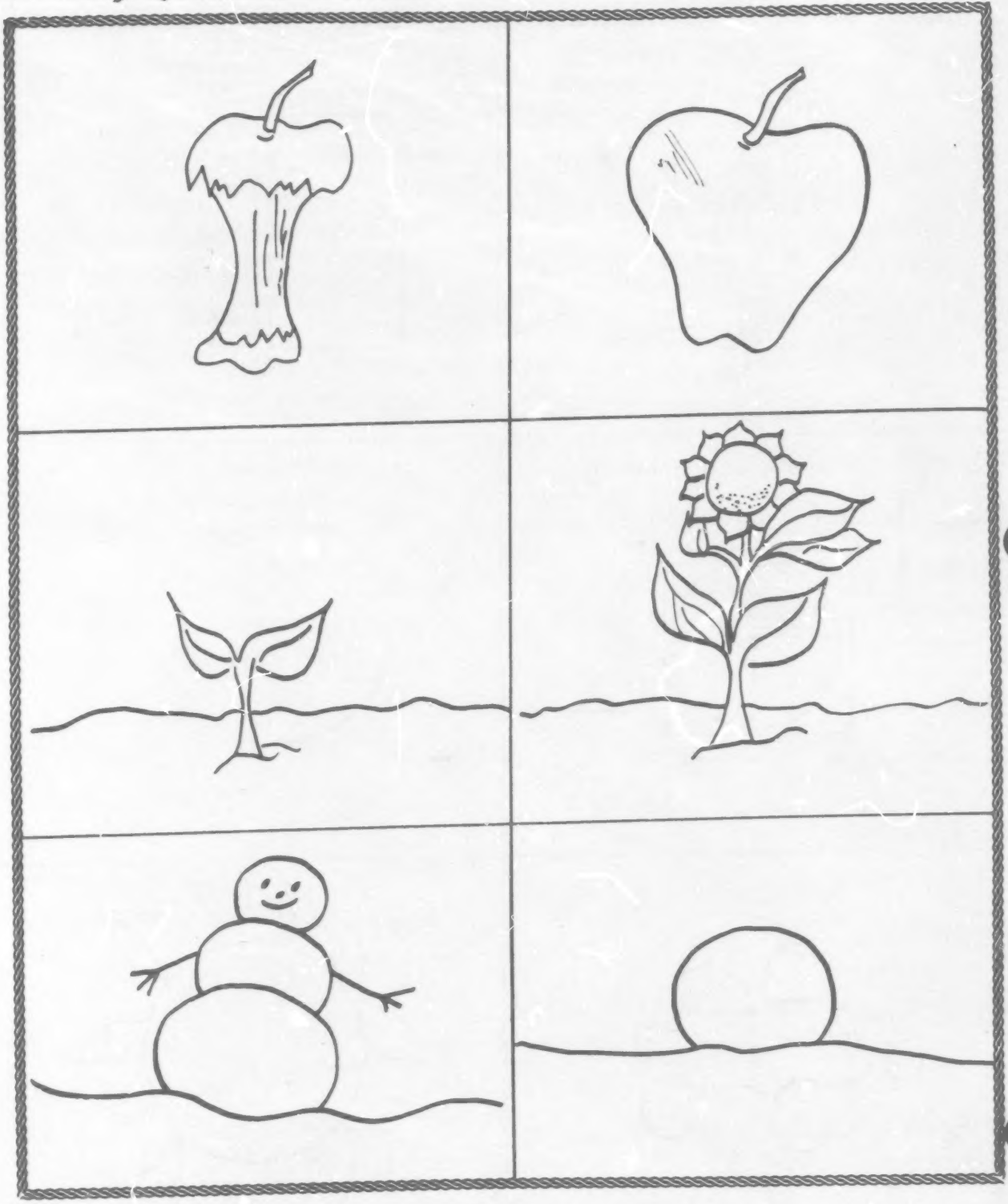
Color pictures that show what happens during the day.
X pictures that show what happens at night.



P.O. 0.10.04.02

NAME: _____ CLASS: _____

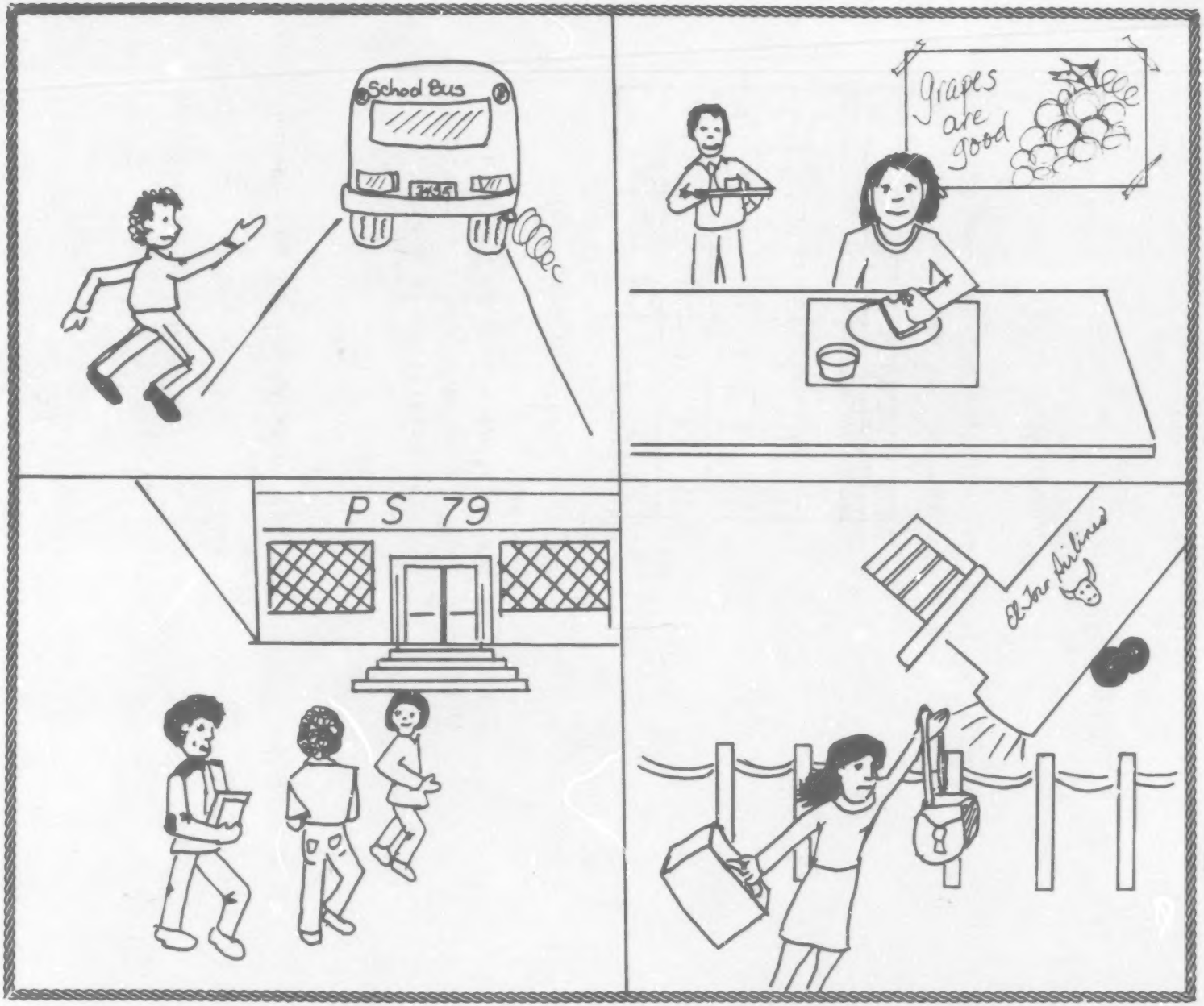
Circle the pictures that show what comes before.
X the pictures that come after.



P.O. 0.10.04.02

NAME: _____ CLASS: _____

X the people who are late.



-16d -

0.10.05 CALENDAR

(3 lessons/ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

0.10.05.01 recognize that a calendar has the name of the month, days of the week, year and dates;
e.g.,

NOVEMBER 198[illegible]

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	

0.10.05.02 recognize the time relationship - yesterday, today and tomorrow;
e.g.,
Yesterday we walked to the park.
Today we are going to the library.
Tomorrow we will see a movie.

0.10.05.03 name the holidays and seasons as they occur.
e.g.,
This month we will celebrate Thanksgiving.
It is Fall.

0.10.05

VOCABULARY

TERMS

calendar	yesterday
months	today
days	tomorrow
weeks	holidays
year	seasons
date(s)	

GETTING STARTED

Say, "Who knows today's name? Who knows the names of other days? Today we are going to learn about the seven days of the week." Recite the poem:

> Which day of the week do you like the best?
> Sunday, Monday and all the rest.
> Tuesday, Wednesday, Thursday, Friday, still one more,
> That is Saturday.
> Which of the days do you like?
> Sunday, Monday and all the rest.

Teach the names of the days by rhythmic clapping to the poem stated above. Discuss the names of the days of the week, the order of the days, and the days on which the students usually go to school. Say, "Saturday and Sunday are special days called the weekend. We do not come to school on those days. What are some of the things that you like to do on the weekend?" Discuss the different activities.

Teach this jingle:

> Today is Monday, Monday stringbeans, all you hungry youngsters come and eat it up, come and eat it up.
> Today is Tuesday, Tuesday spaghetti, all you hungry youngsters come and eat it up, come and eat it up.

Continue in sequence - Wednesday is soup, Thursday roast beef, Friday fresh fish, Saturday chicken, Sunday ice cream.

0.10.05

0.10.05.01 recognize that a calendar has the name of the month, days of the week, year and dates

STRATEGY 1: Distribute a monthly calendar and a pencil to each student. Display a large calendar. Say, "This is a calendar." Point to days of the week and sing the song in the getting started. As a daily lesson, help the students find the number for each day and draw a picture to illustrate the weather. Repeat this procedure for month, year and dates.

STRATEGY 2: Distribute a monthly calendar and a pencil to each student. Display a large calendar. Point to the name of the month on the calendar. Say, "This is the name of this month." Assist students in circling the name of the month. Say, "This is the name of one month of the year. There are other months of the year. 'Thirty days has September, April, June and November. All the rest have 31, except February which has 28 except in a Leap Year it has 29.' Does anyone have a birthday this month?" Check records. If anyone has a birthday, point to the date on the calendar and say, "Jane's birthday is _____."

Repeat this procedure at the beginning of each month.

0.10.05.02 recognize the time relationship - yesterday, today and tomorrow

STRATEGY 1: Distribute individual calendars. Point to the date on the calendar. Students do likewise on their individual calendars. Say, "This is today. It is (day) (month) (date) (year)." Students circle the date, draw a weather picture and say the name of the day.

0.10.05

STRATEGY 1: cont'd

During the following day, say, "Who remembers what we did yesterday? Today we are going to _____. Tomorrow we will _____." Repeat this procedure as a daily morning activity.

STRATEGY 2:

Write an experience chart or booklets of the activities the students dictate. They should speak in complete sentences telling what they did yesterday, what they plan to do today, and what they hope to do tomorrow. Ask students to draw pictures to illustrate their experience story.

0.10.05.03 name the holidays and seasons as they occur

STRATEGY 1:

Display the October calendar. Point to October 12. Say, "This is a special day called Columbus Day. It is when a man named Christopher Columbus found our country." Read and discuss the story of Christopher Columbus.

Discuss how we celebrate special days called holidays. Say, "A holiday is a day set aside to be remembered for a special purpose." Discuss how Columbus Day will be celebrated.

Point to October 31 and say, "This is Halloween. This is another holiday in October." Briefly discuss its significance.

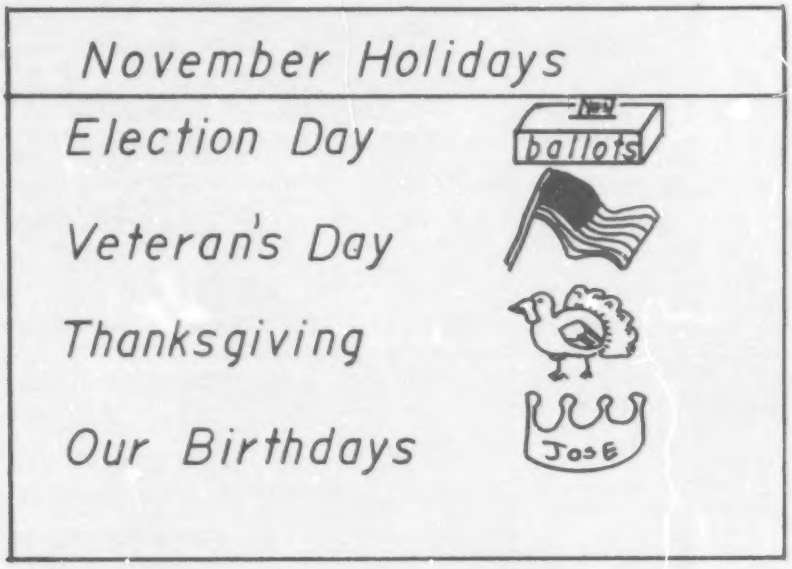
Repeat this procedure at the beginning of each month.

STRATEGY 2:

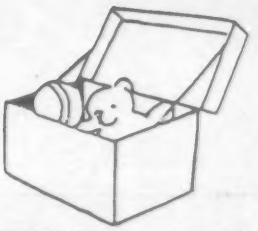
Each month write an experience chart about the holidays celebrated during that month. Discuss why and how holidays will be celebrated that month, including special days such as students' birthdays. Ask students to collect pictures pertaining to

STRATEGY 2: monthly holidays which will be used to decorate
cont'd experience charts.

As new seasons begin, name them and discuss holidays that are part of that season.



P.O. 0.10.05.01



Use this page with Strategy 1 and/or Strategy 2.
Complete the calendar.

P.O. 0.10.05.02

NAME: _____ CLASS: _____

Draw pictures.

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Things We Did Yesterday	Things We Will Do Today	Things We Will Do Tomorrow

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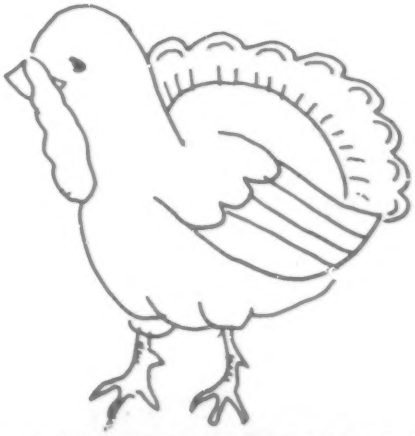
P.O. 0.10.05.03

NAME: _____ CLASS: _____

Draw a line to match the holiday pictures.



0.01.08 MORE IDENTIFICATION OF NUMBERS AROUND US

(1 lesson)

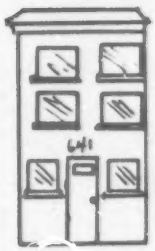
PERFORMANCE OBJECTIVES

The student will be able to...

0.01.08.01 identify personal data.

e.g.,

- age
- birthday
- address - apartment number, floor
- telephone number



0.01.16

VOCABULARY

TERMS

month
birthday
address
telephone number

GETTING STARTED

Display numeral cards 5-7. Teach this song to the tune of "Happy Birthday to You" in round robin format.

How old are you, _____ (name of pupil)
How old are you, _____
What month is your birthday?
How old are you now?

Pupils respond with their own personal data and hold up the appropriate numeral card.

Prepare a classroom birthday chart for use as an ongoing activity. List the names and new ages of students with birthdays on that day or in that month. Make a birthday crown with the student's name and numeral for his/her age for the birthday student to wear. Pupils sing the birthday song to the birthday student and in the same melody sing: "How old are you now?" Repeated four times. The birthday student responds, "I am ____ years old now." Repeated three times.

e.g.,

0.01.16

0.01.16.01 **identify personal data**

STRATEGY 1: Prepare and distribute a personal data worksheet, a small paper bag, a 4 inch circle, paste and crayons.

e.g.,

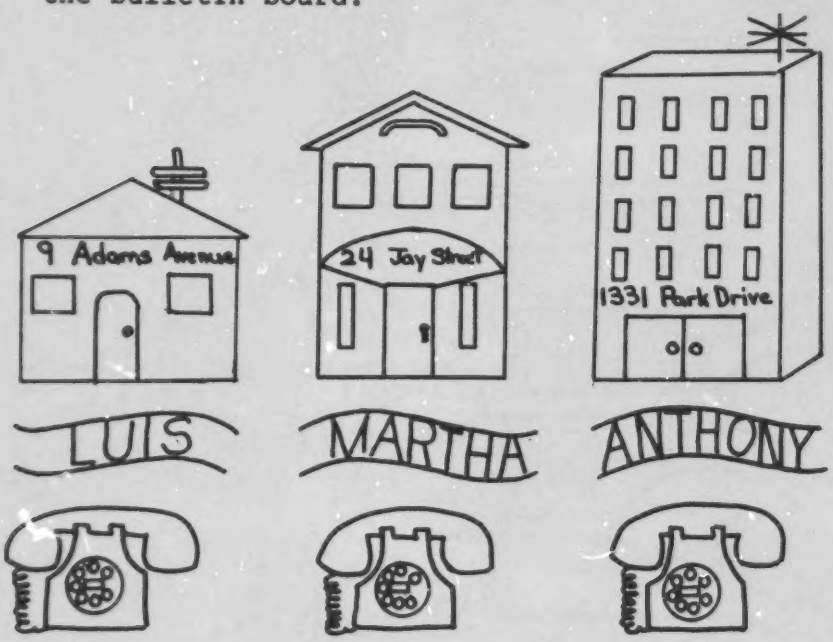
My name is _____.
I am ____ years old.
My birthday is in _____ (month).
The number of my house is _____.
The street I live on is _____.
My telephone number is _____.

Distribute the paper bag and the circle to each student. Say, "Let's each make a puppet which looks like ourselves. Your puppet can tell us all about you." Pupils draw their own faces on the circle. Turn the paper bag upside down and paste the face on the bottom flap of the bag. Distribute and paste the personal data worksheet on the puppet's back. The worksheet should be completed by the pupils. Puppets should be used to discuss these facts as each new personal fact is learned. Display the puppets on the bulletin board.

e.g.,

STRATEGY 2: Prepare crayons, drawing paper and the accompanying telephone workbook page for each student. Discuss the various types of housing in the neighborhood. e.g., apartment house, two family, ... Encourage each pupil to tell the kind that he/she lives in. Distribute crayons and paper and say, "Draw a picture of your house." Cut out the houses, write the address on each and arrange them on a bulletin board. Add name cards under the houses to designate ownership.

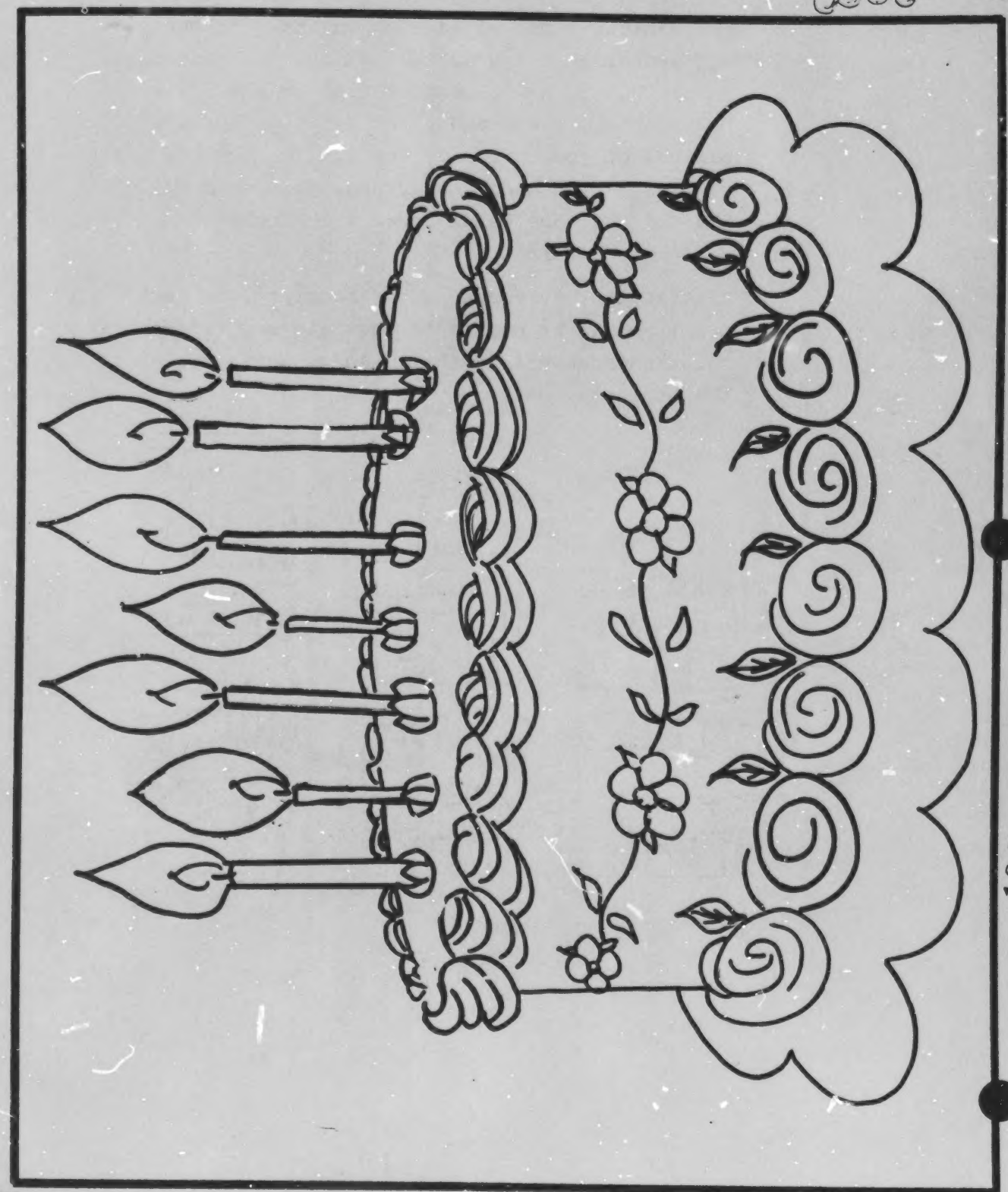
Distribute the telephone workbook page to each pupil. Ask the pupils to decorate and write their telephone numbers on them. Add these pictures to the bulletin board.



P.O. 0.01.08.01

NAME: _____ CLASS: _____

How old are you ? Color that amount of candles.



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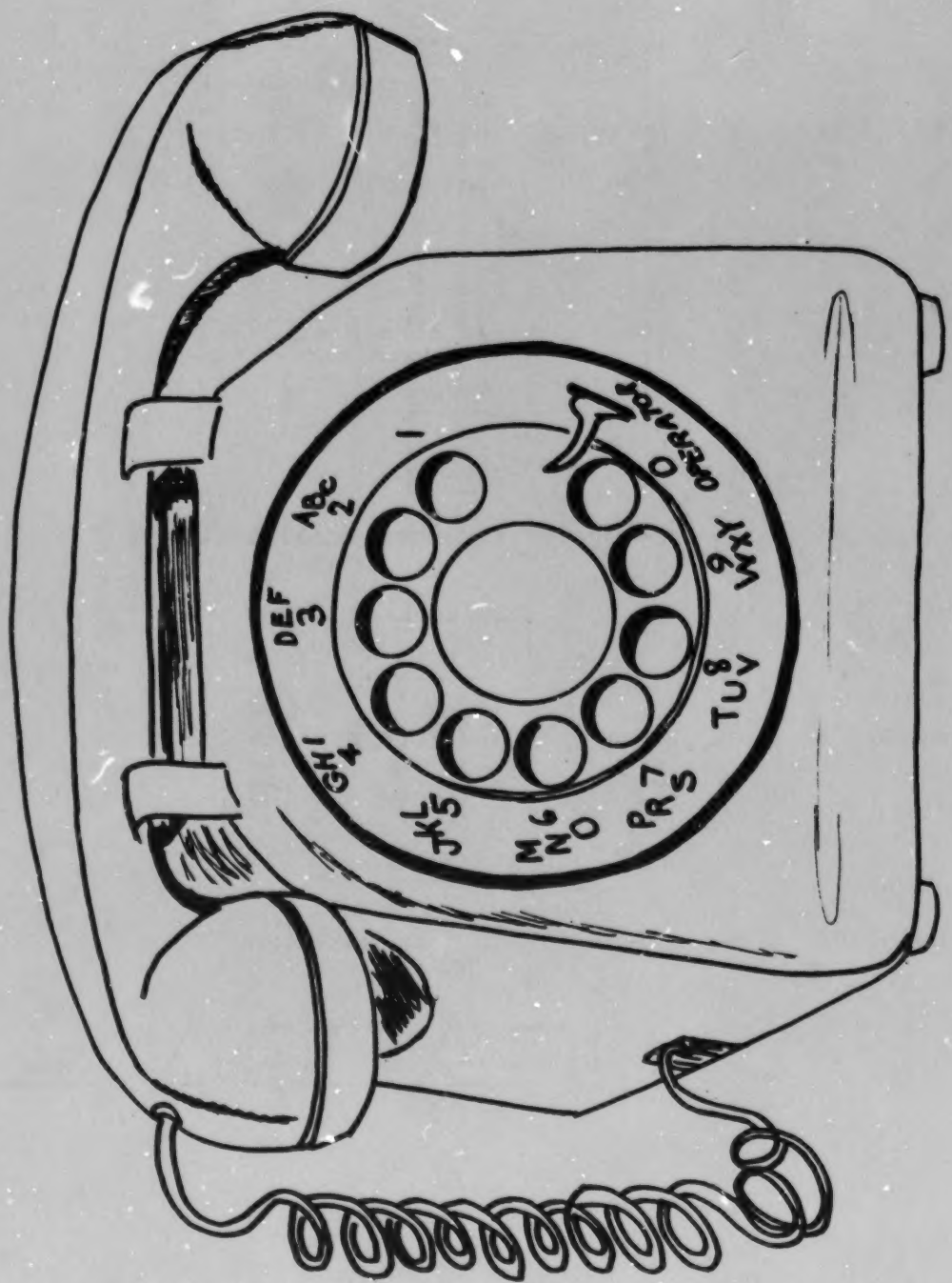
0.01.08.01

P.O._____

NAME:_____ CLASS:_____

Write your telephone number.
Color the telephone.



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Unit 17

0.09.02 SHAPES AROUND US

(5 lessons)

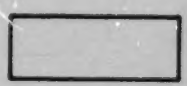
PERFORMANCE OBJECTIVES

The student will be able to...

0.09.02.01 recognize and form a circle;
e.g.

0.09.02.02 recognize and form a square;
e.g.,

0.09.02.03 recognize and form a rectangle;
e.g.,



0.09.02.04 recognize and form a triangle;
e.g.,

0.09.02.05 identify and form patterns.
e.g.,

0.09.02

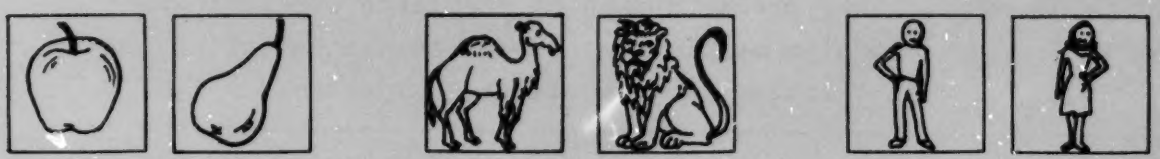
VOCABULARY

TERMS

circle
square
triangle
rectangle

GETTING STARTED

Distribute property blocks to each student. Say, "Put the blocks that are the same together in some way." Ask each student how he/she grouped the blocks.
e.g.,



Display an assortment of foods (e.g., candies, crackers, cereals, pretzels) of varying sizes and shapes which pupils may later eat during their snack time. Ask the pupils to examine the foods displayed. Say, "How can we tell one food from another?" (color, size, taste and shape)

Pick up a round candy (e.g., sour ball). Say, "Can you find another food that is shaped like this one?" Continue until all round foods have been identified according to their shape. Repeat this procedure for each shape.

0.09.02

0.09.02.01 **recognize and form a circle**

STRATEGY 1: Prepare paste and applicators for each student. Distribute a set of 1 in., 2 in., 5 in. and 10 in. circles to each student and display a set on the flannel board. Point to one circle and say, "This is a circle. Find the largest circle. Hold it in front of you and say, 'This is a circle'. Place the circle on your table and trace around it with your finger." Demonstrate. Repeat this procedure with the other circles.

Distribute paste and applicators. Say, "Arrange your circle shapes on the large circle to make a design or picture. When you are satisfied, paste it on the largest circle."

STRATEGY 2: Hold up a circle shape. Say, "This is a circle." Ask students to stand and all join hands to form a circle. Say, "How do we know that we have made a circle? We have formed a round shape. Who can skip around the circle? We are going to pass a ball around the circle and play the game The Ball Goes Round and Round. Say, "The ball goes round and round. (repeat) Where it stops no one knows. You are out."

0.09.02.02 **recognizing and forming a square**

STRATEGY 1: Hold up a squared linoleum tile. Say, "This is a square shape." Place several tiles on the floor. Students should feel or walk on the sides of the square tiles. Using chalk, trace the outline of the tiles on the floor. Say, "How does a square look?" (All of the sides are the same size.)

Demonstrate by turning the tile within the chalk

STRATEGY 1: cont'd squares to prove the above statement. Repeat this procedure using other squared materials of different sizes, e.g., carpet square, ceramic tile, box covers, pictures frames.

STRATEGY 2: Distribute a tray with squares of various sizes and colors, drawing paper and crayons to each pupil. Select a pupil to choose a square from the teacher's tray. The pupil will hold up a square and sing, "Did you ever see a square, a square, a square? Did you ever see a square? Please show it to us."

Pupils will match size, shape and/or color of their squares to the one being held up by the leader. Say, "Trace this square anywhere on your drawing paper." Repeat this procedure with several leaders.

0.09.02.03 recognizing and forming a rectangle

STRATEGY 1: Distribute a paper rectangle to each student. Display a rectangle and say, "This is a rectangle. Trace your rectangle with your finger." Ask the students to identify rectangles around the classroom.

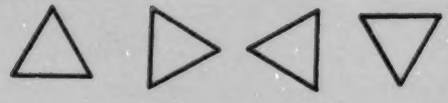
STRATEGY 2: Prepare various sized rectangular boxes and large drawing paper. Hold up a rectangle and say, "This is a rectangle." Ask students to trace different sized rectangles from box bottoms onto a large sheet of paper making a pattern of rectangles. Say, "Choose a box, find the matching rectangle on the sheet of paper and place the box in it."

0.09.02

0.09.02.04 **recognizing and forming a triangle**

STRATEGY 1: Prepare a record with 3/4 time. Show the pupils a musical instrument triangle. Sav, "This is a triangle." Ask each student to trace the triangle shape. Play the record so that everyone draws triangles in the air to the beat of the music.

STRATEGY 2: Distribute 3 popsicle sticks, 3 pipe cleaners and 3 straws. Display a triangular shape and say, "This is a triangle. Let's trace the triangle shape in the air." Display the triangle shape facing in different positions.
e.g.,



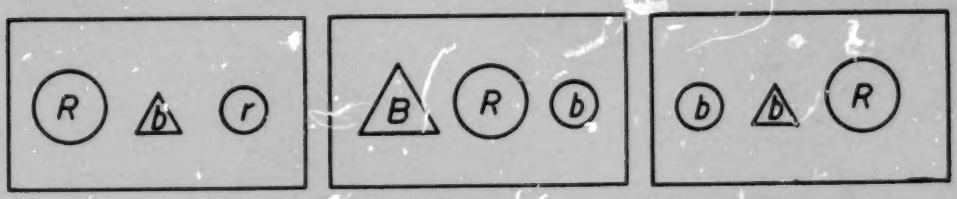
Say, "How does a triangle look?" (A triangle has three sides and three corners) Using the above materials, students should make their own triangles facing in all positions.

0.09.02.05 **identify and form patterns**

STRATEGY 1: Distribute flannel board figures to each student. Display a pattern using these flannel board figures, e.g., tree, bird, tree, _____. Name each cutout. Say, "We are going to make a pattern. A pattern repeats itself. Let's add to the pattern. What comes next?" Ask other students to continue two more elements in this pattern. Repeat this procedure using other figure patterns. Encourage students to make up patterns for others to name and continue.

STRATEGY 2: Place 16 shapes in a box: 2 large red and 2 large blue circles; 2 large red and 2 large blue triangles; 2 small red and 2 small blue circles; and 2 small red and 2 small triangles. Display two shapes which you have randomly selected. Ask several students to identify each shape. e.g., a large red circle and a large red triangle. Say, "How are these shapes the same? How are these shapes different?" Repeat this procedure using the other shapes.

Display patterns using these shapes.
e.g.,

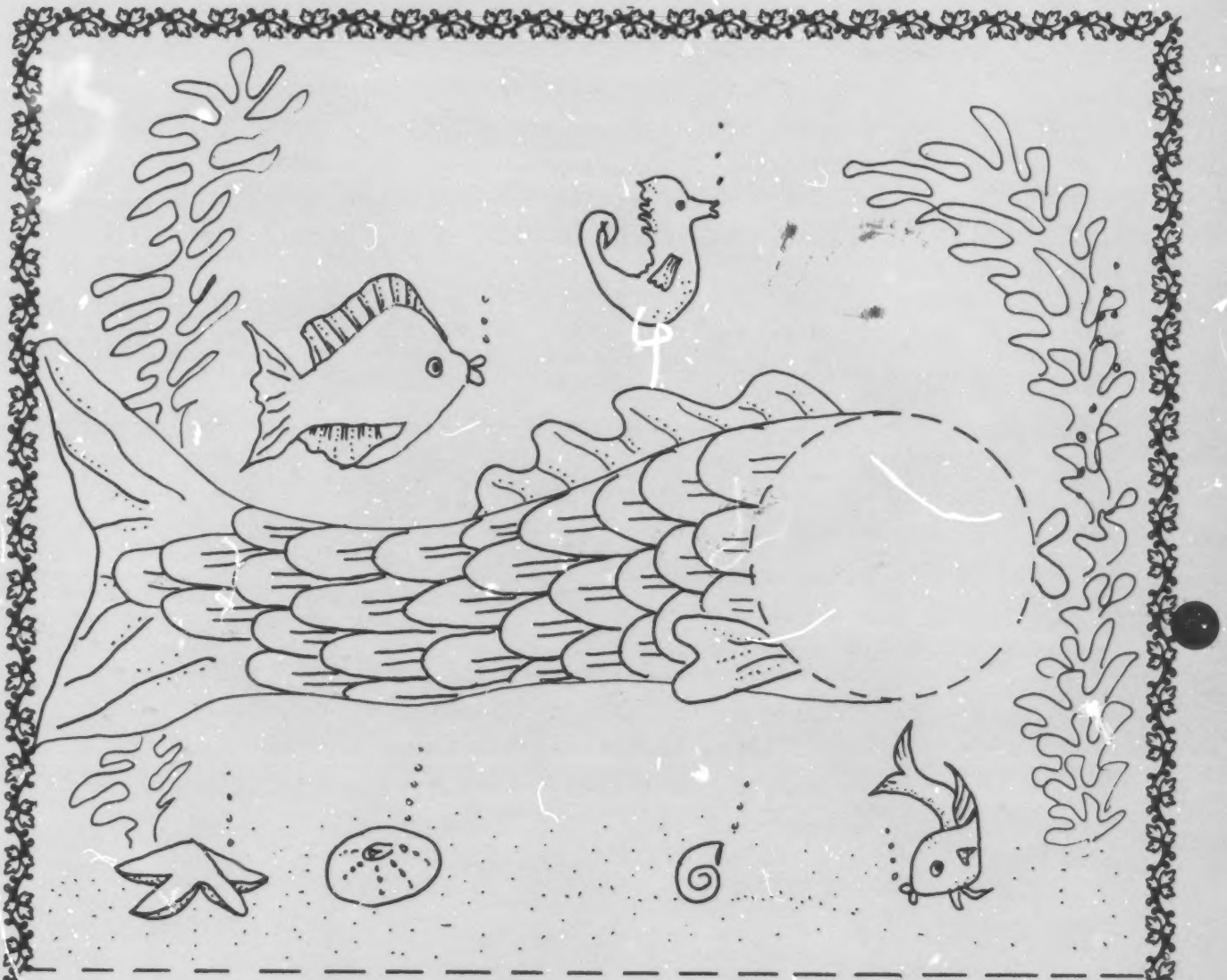


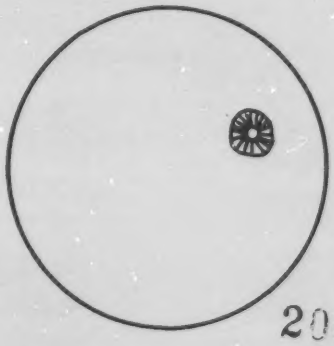
Students should identify and continue the patterns. Display other patterns. Students should take turns identifying the shapes and patterns. Ask students to take turns making patterns to be completed by other students.

P.O. 0.09.02.01

NAME: _____ CLASS: ____

Cut and paste the circle on the fish.





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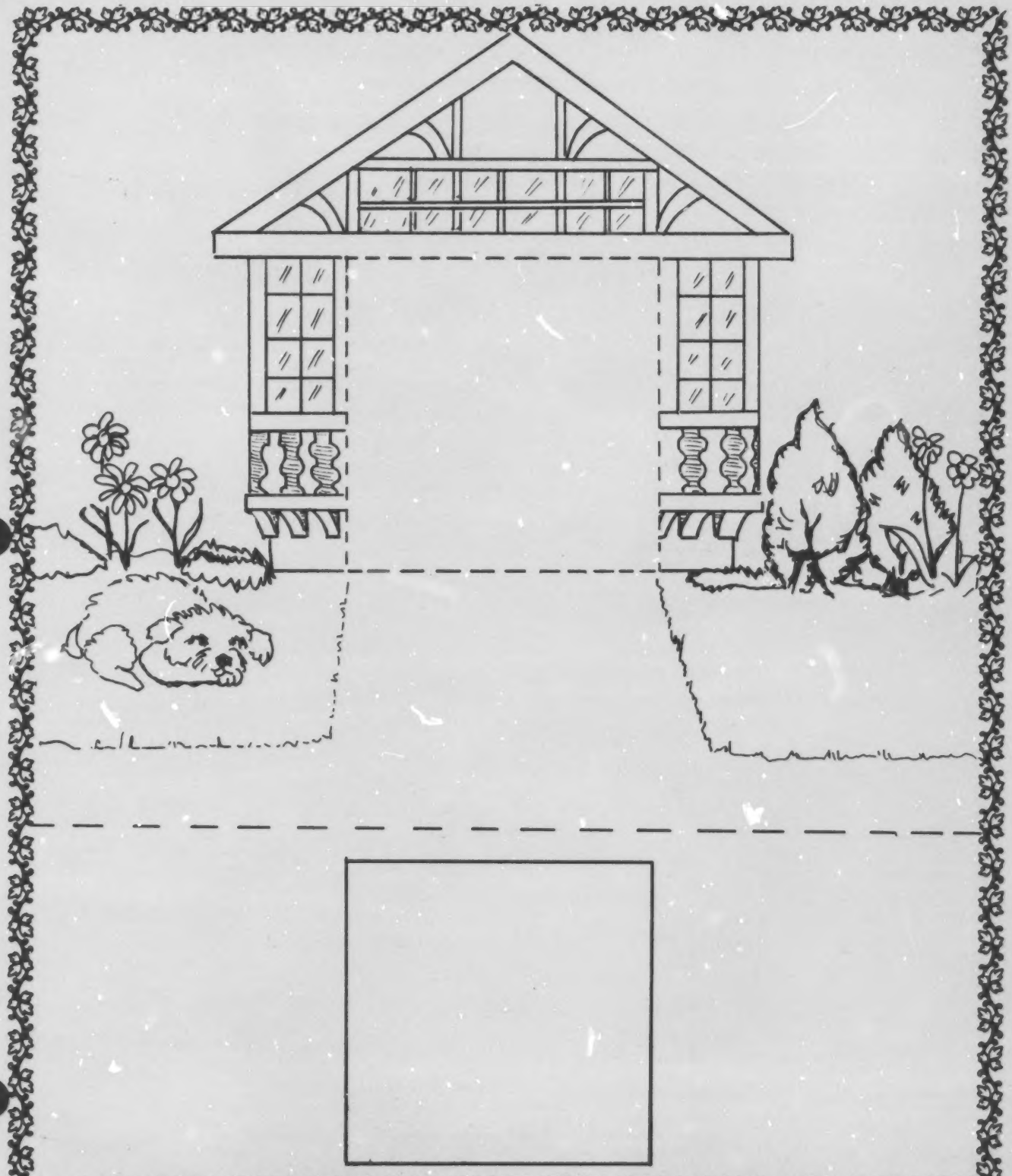
P.O. 0.09.02.02

NAME: _____ CLASS: _____

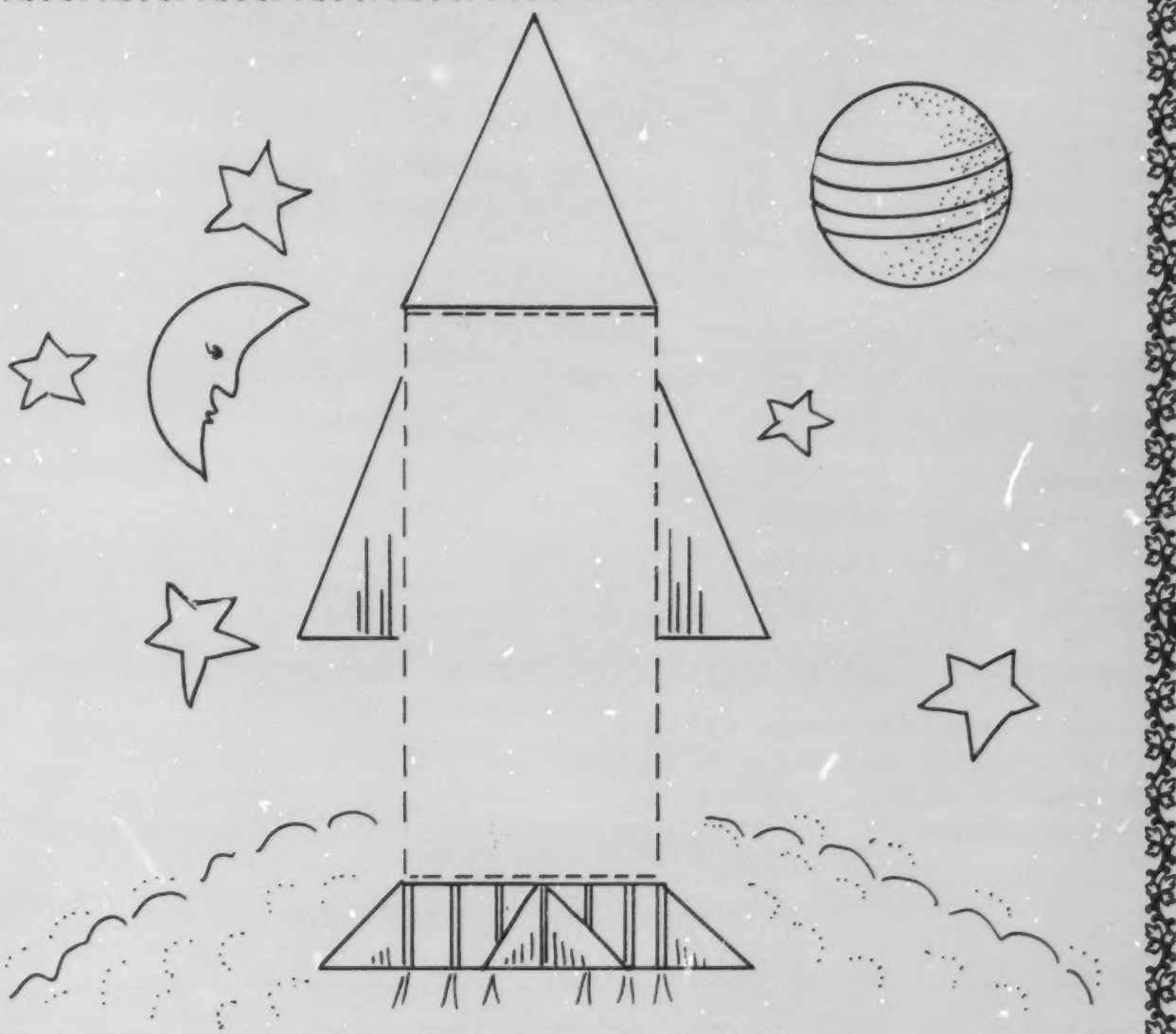
Cut and paste the square on the house.

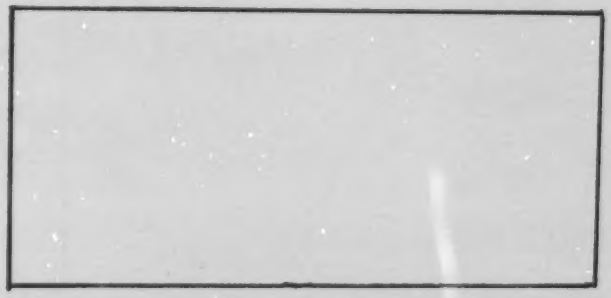


P.O. 0.09.02.03

NAME: _____ CLASS: _____

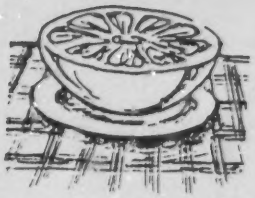
Cut and paste the rectangle on the rocketship.



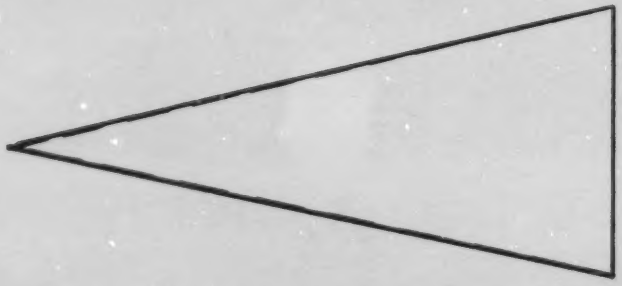


P.O. 0.09.02.04

NAME: _____ CLASS: _____



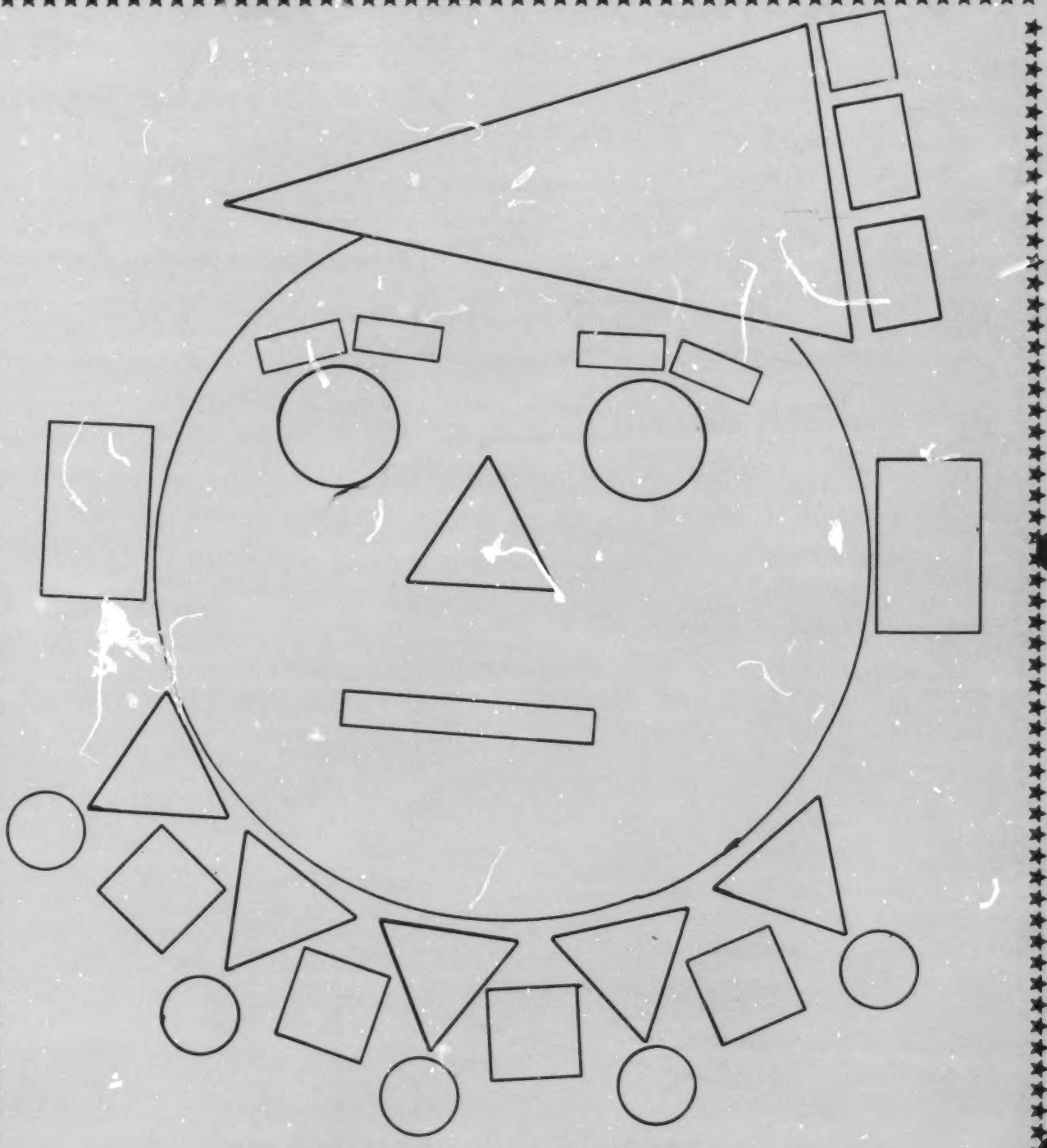
Cut and paste the triangle on the carrot.



P.O. 0.09.02.01 - .04

NAME: _____ CLASS: _____

Color ◯ red, △ blue, □ green, and ▭ yellow.



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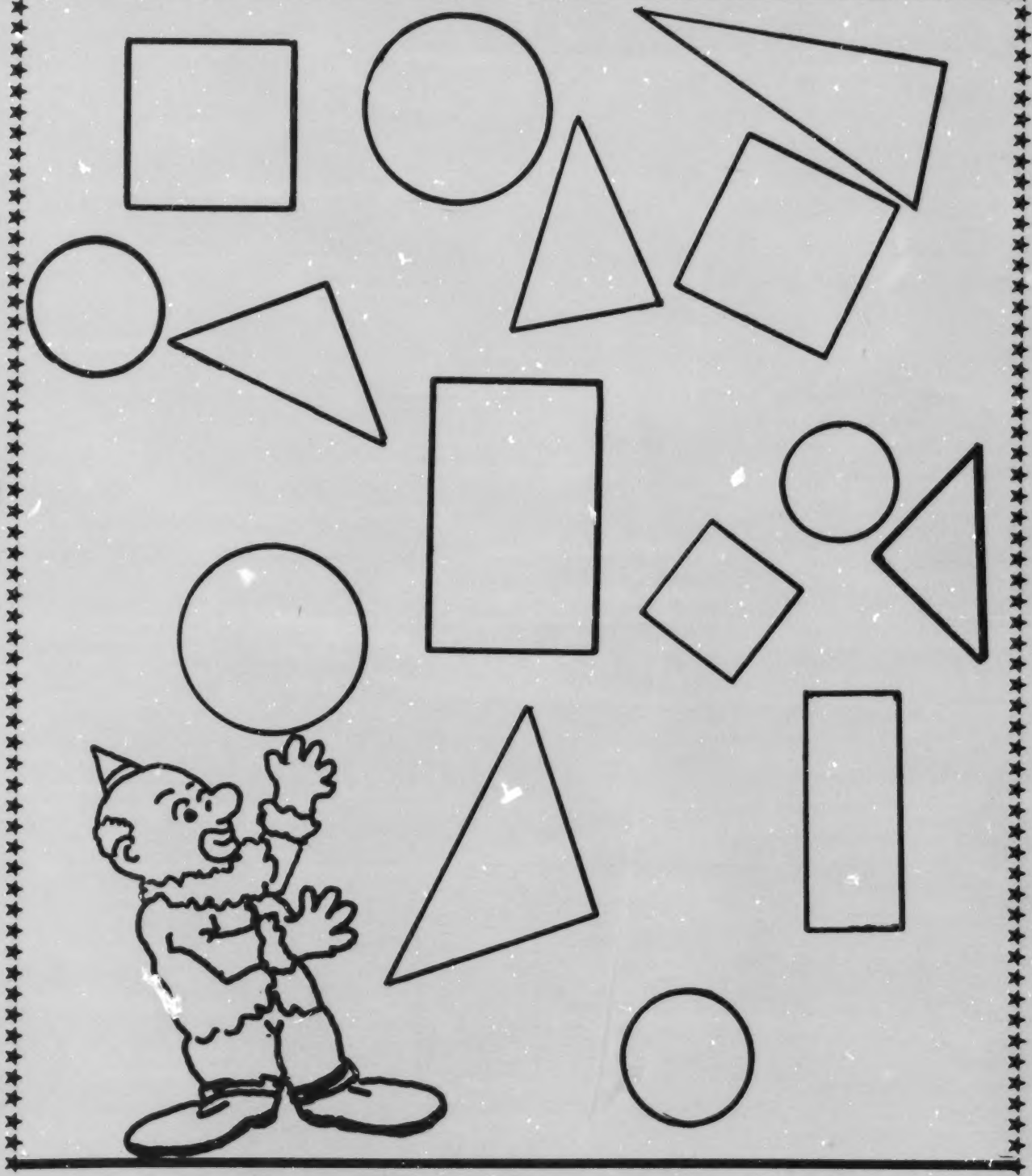
P.O. 0.09.02.01 - .04

NAME: _____ CLASS: ____

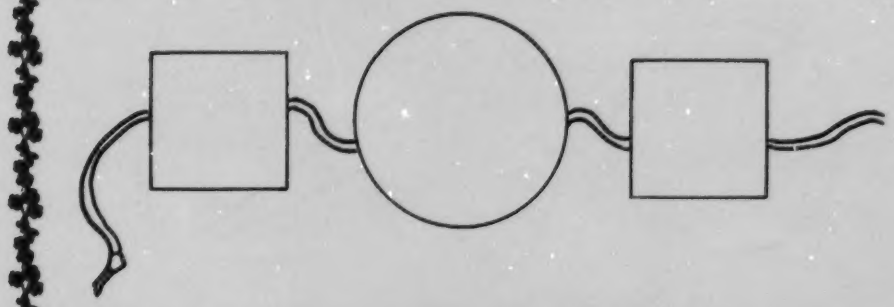
Color ○ blue □ red
▭ green △ yellow

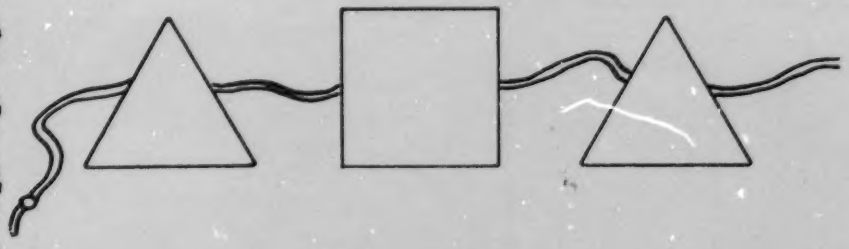


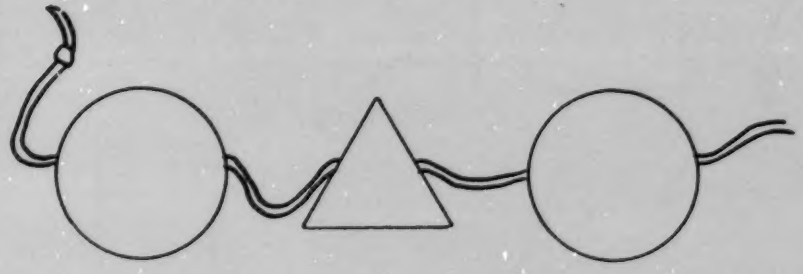
P.O. 0.09.02.05

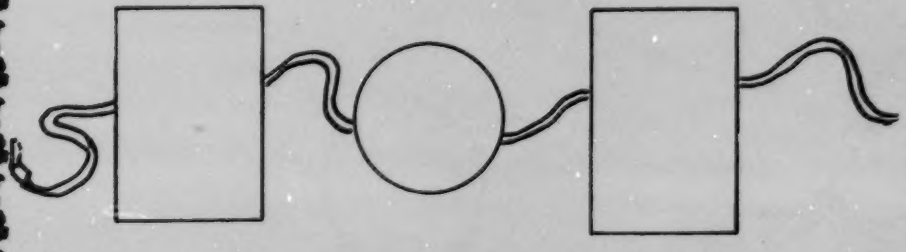
NAME: _____ CLASS: _____

Draw the next shape to continue the pattern.





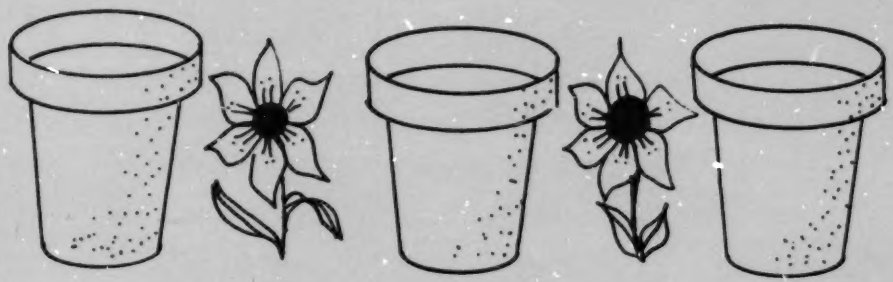


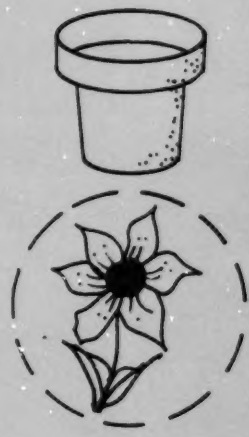


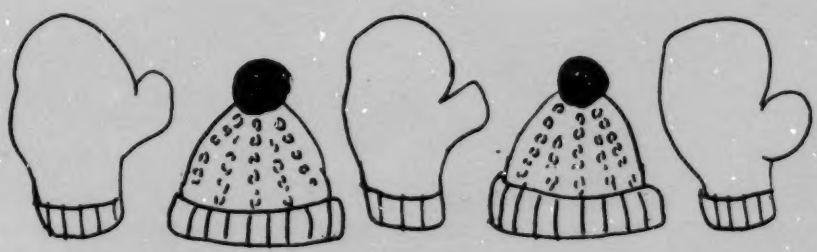
P.O. 0.09.02.05

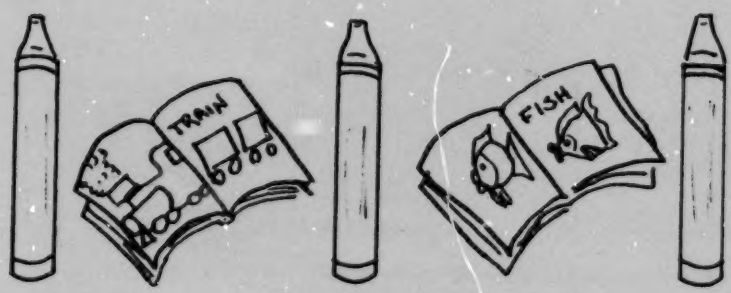
NAME: _____ CLASS: _____

Circle the object that comes next in the pattern.



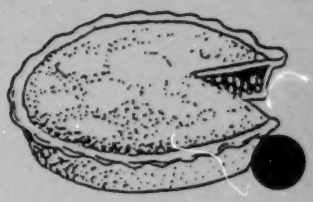




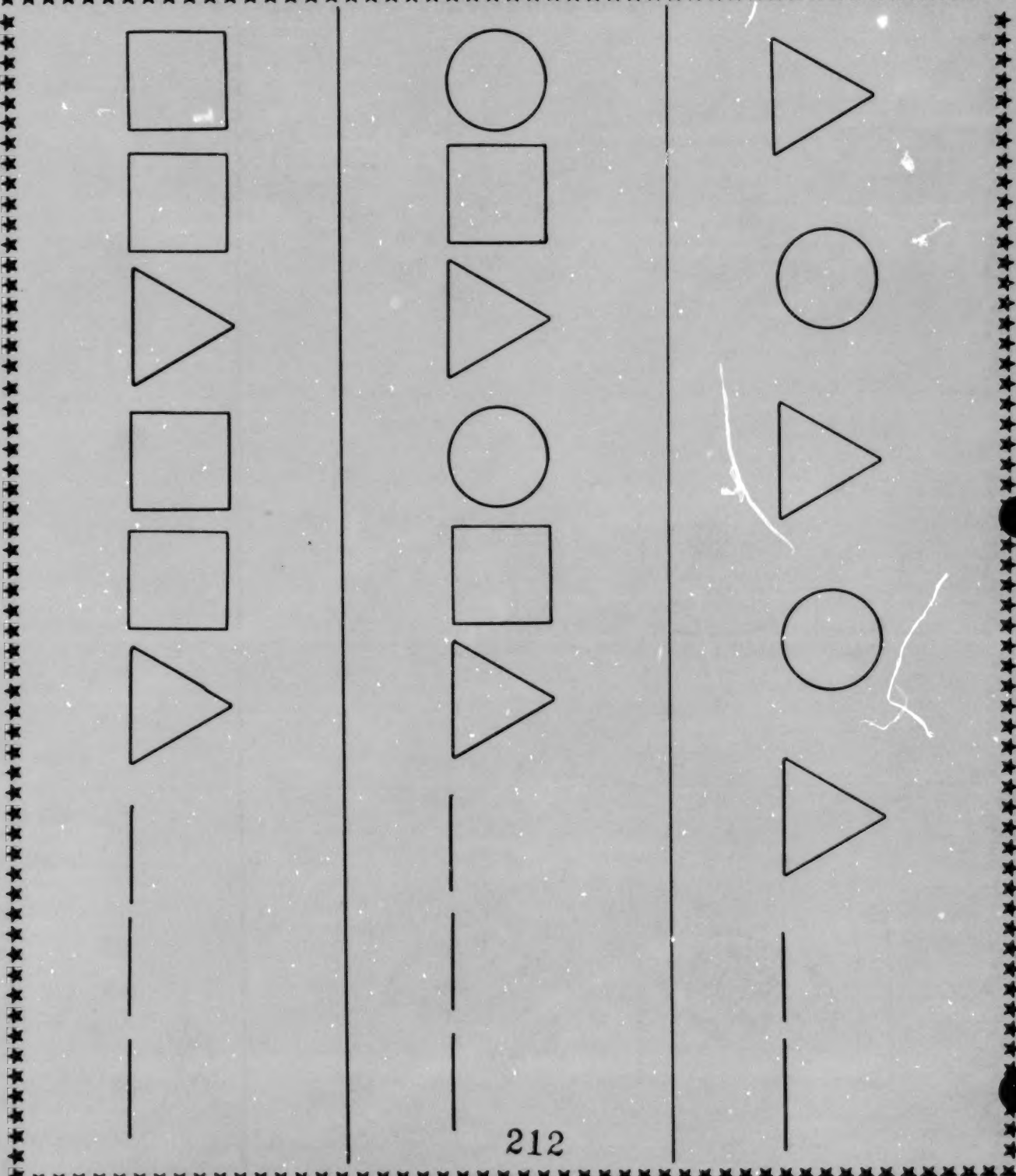


P.O. 0.09.02.05

NAME: _____ CLASS: _____



Continue the pattern.



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0.01.09 SPATIAL RELATIONSHIPS - EXTENDED VOCABULARY

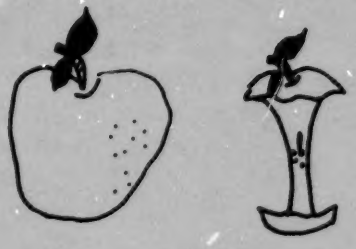
(3 lessons/ongoing)

PERFORMANCE OBJECTIVES

The student will be able to...

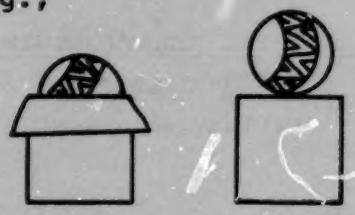
0.01.09.01 distinguish between top and bottom;
e.g.,

0.01.09.02 distinguish between before and after;
e.g.,



0.01.09.03 distinguish between inside and outside;
e.g.,

0.01.09.04 distinguish between in and on;
e.g.,



0.01.09.05 distinguish between left and right;
e.g.,

0.01.09.06 distinguish between next to and between;
e.g.,

0.01.09.07 distinguish among first, middle and last.
e.g.,

0.01.09

VOCABULARY

TERMS

top-bottom
before-after
inside-outside
in-on
left-right
next to-between
first-middle-last

GETTING STARTED

Draw a large circle on the floor. Demonstrate walking inside, outside and on the circle. Say, "Freeze!" Students should stand where they are. Ask each student to tell where he/she is standing, e.g., I am standing on the circle. Continue this game by varying the directions, e.g., Students inside the circle should raise their hands.

Play a game of Simon Says emphasizing positional language. Demonstrate as you say, "Touch the top of your head. This is the top of your head. Touch the bottom of your ear. This is the bottom of your ear." Play the game. Say, "Simon says, touch the top/bottom of your ear. Simon says, put your hands in/on the desk. Simon says, raise your left/right hand."

0.01.09

0.01.09.01 distinguish between top and bottom

STRATEGY 1: Ask the students to build a tower with table blocks or counting cubes. Point to the foundation block and say, "This block is at the bottom." Indicate the top and say, "This is the top." Ask each student to point to the top or bottom of his/her tower and tell which position is being shown.

STRATEGY 2: Distribute toy dishes (one cup and one saucer) or a paper cup and plate to each student. Say, "If you were setting the table, where would you put the cup? (on top of the saucer) Place the cup on top of the saucer (plate). Where is the saucer?" (on the bottom) Repeat this procedure using other objects, e.g., different blocks, 2 different color discs.

0.01.09.02 distinguish between before and after

STRATEGY 1: Ask students to form a line facing toward the door. Point to the second student and say, "Armando is before Lisa on line. Lisa, Walter and Tamika are after Armando on line." Ask Lisa to raise her hand and say, "Who is before Lisa on line? Who is after Lisa on line?" Repeat this procedure with each student on line and then with other groups of students.

STRATEGY 2: Attach animal pictures to clean empty milk containers and distribute one to each student. Place one extra container at each table for the

STRATEGY 2: cont'd

engine of the train. Say, "We are going to have a circus. The animals travel by train. Put your circus train together so that it is ready to travel. Remember the engine is at the front of the train." After the students have formed their train ask questions about the location of the animals. Say, "Which animal is before the zebra? ...after the engine?"

0.01.09.03 distinguish between inside and outside

STRATEGY 1: Form a circle with rope or a hula hoop for each student. Say, "This is your space. How can you move inside your space?" (We can move our hands up and down, swing our feet front and back ...) Ask several students to demonstrate their movements. Say, "Can you move one arm outside of your space?" Ask a student to demonstrate his/her movement. Repeat this procedure moving various parts of the body inside and outside of the space.

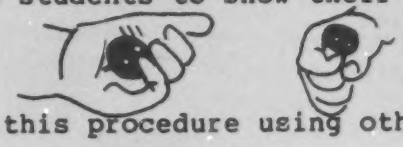
STRATEGY 2: Draw a circle on the floor. Distribute beanbags. Say, "This is a beanbag. We will try to toss the beanbag inside the circle." Ask each student to toss the beanbag. Say, "Did the beanbag land inside or outside of the circle?"

0.01.09.04 distinguish between in and on

STRATEGY 1: Distribute to each student a flat button or disc. Say, "We are going to listen for directions. When

STRATEGY 1: cont'd

I say put the button in your hand, do this." Demonstrate. Say, "Put the button in your hand." Check students' actions. Demonstrate as you say, "Sometimes I will say put the button on your hand. When I say put the button on your hand, do this." Ask the students to show their response to on.
e.g.,



Repeat this procedure using other directions for in and on.

STRATEGY 2: Draw a chalk circle on the floor. Say, "We will play a game. You are to walk on the circle until I clap my hands." Demonstrate. Say, "When I clap my hands you are to stop walking. After you stop, you are to move inside the circle. If you are in the circle you are safe." Identify each position. Ask the students to practice moving, stopping, and going inside the circle. Say, "When we move, we are on the circle. When we stop, we are in the circle." Repeat this procedure several times.

0.01.09.05 distinguish between left and right

STRATEGY 1: Teach the Hokey Pokey:

Put your left hand in, put your left hand out.
Put your left hand in, and shake it all about.
You do the hokey pokey, and you turn yourself about.
That's what it's all about.

Repeat this tune for right hand, left foot and right foot.

STRATEGY 2: Construct rings from red pipe cleaners and place one ring on a finger of the right hand of each student. Say, "Put the hand with the red ring on

STRATEGY 2: cont'd

your head. This is your right hand. Which hand is on your head? Put your right hand on your table. Touch your right hand to your right foot." Repeat this procedure using a different color pipe cleaner ring on the left hand and adapting the directions for use with the left hand.

0.01.09.06 distinguish between next to and between

STRATEGY 1: Ask three students to form a line facing the group. e.g., John, Jenny, David. Say, "David is between John and Jenny. Jenny and John are next to David. Close your eyes while I rearrange these three students. Now John is between David and Jenny. Who is next to John?" Repeat this procedure using other groups of three students.

STRATEGY 2: Prepare two yellow, one blue and one red block for each student. Distribute two yellow blocks and one blue block. Demonstrate as you say, "Place your blue block between the yellow blocks. The blue block is between the yellow blocks. The yellow blocks are next to the blue block. The blue block is next to the yellow block. Put the blue block in your desk."

Distribute a red block to each student. Say, "Make a pattern showing a red block between yellow blocks. A red block is between two yellow blocks. The yellow blocks are next to the red block. The red block is next to the yellow blocks." Repeat this procedure using other block combinations.

0.01.09

0.01.09.07 distinguish among first, middle and last

STRATEGY 1: Ask three students to form a line, one behind the other, facing the class. Indicate which pupil is first. Say, "John is first, Pam is in the middle and Michael is last." Ask other students to form groups of three and to identify who is first, middle, and last. Direct each student to perform an activity, e.g., the first student claps hands, the middle student jumps up and down, and the last student snaps his/her fingers.

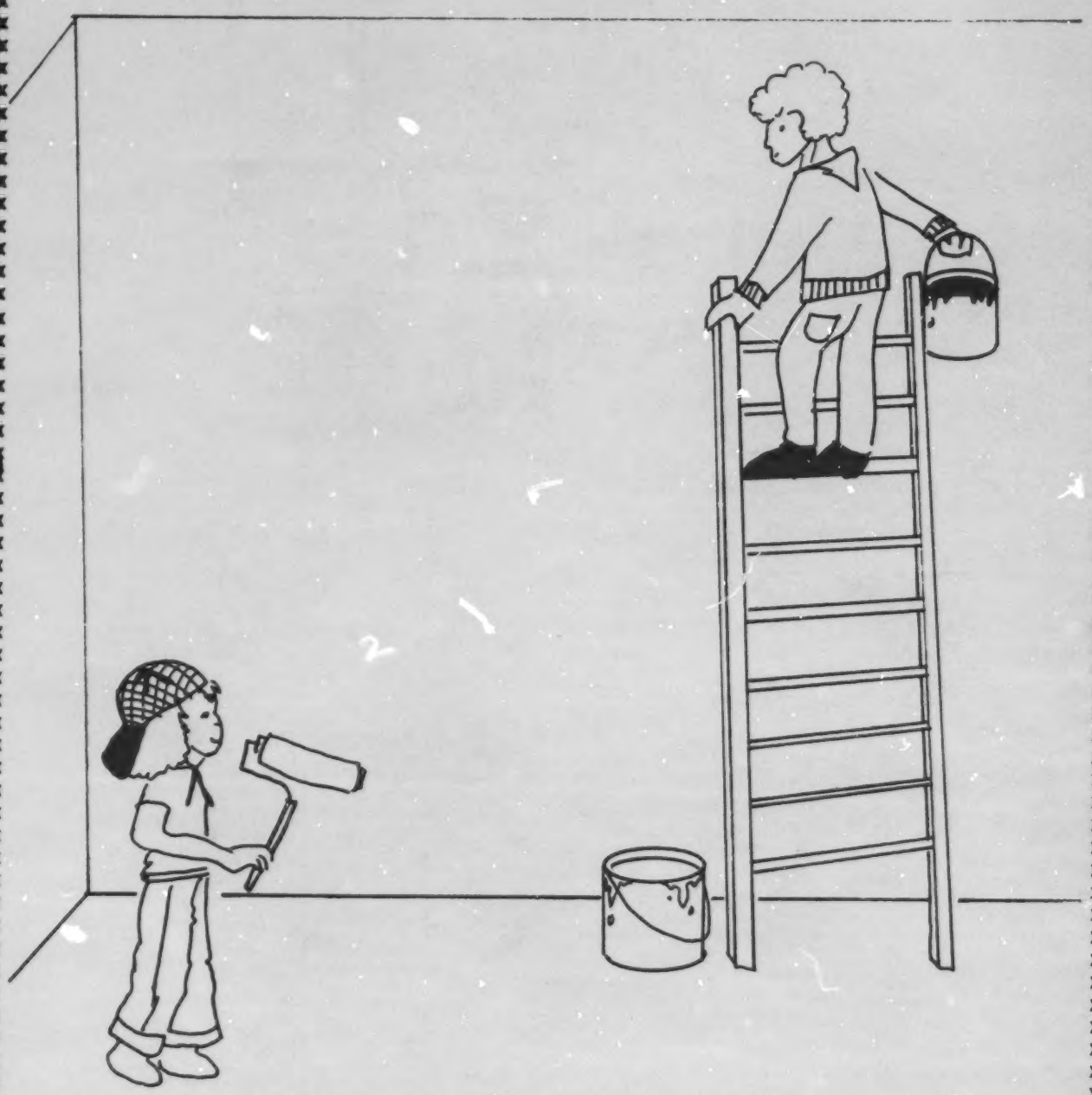
STRATEGY 2: Play Simon Says. Arrange the students in rows of first, middle and last. Say, "Simon says the students in the first row should put their hands on their head." Repeat this procedure by providing a variety of commands directed to each position.

0.01.09.01

P.O._____

NAME:_____ CLASS:_____

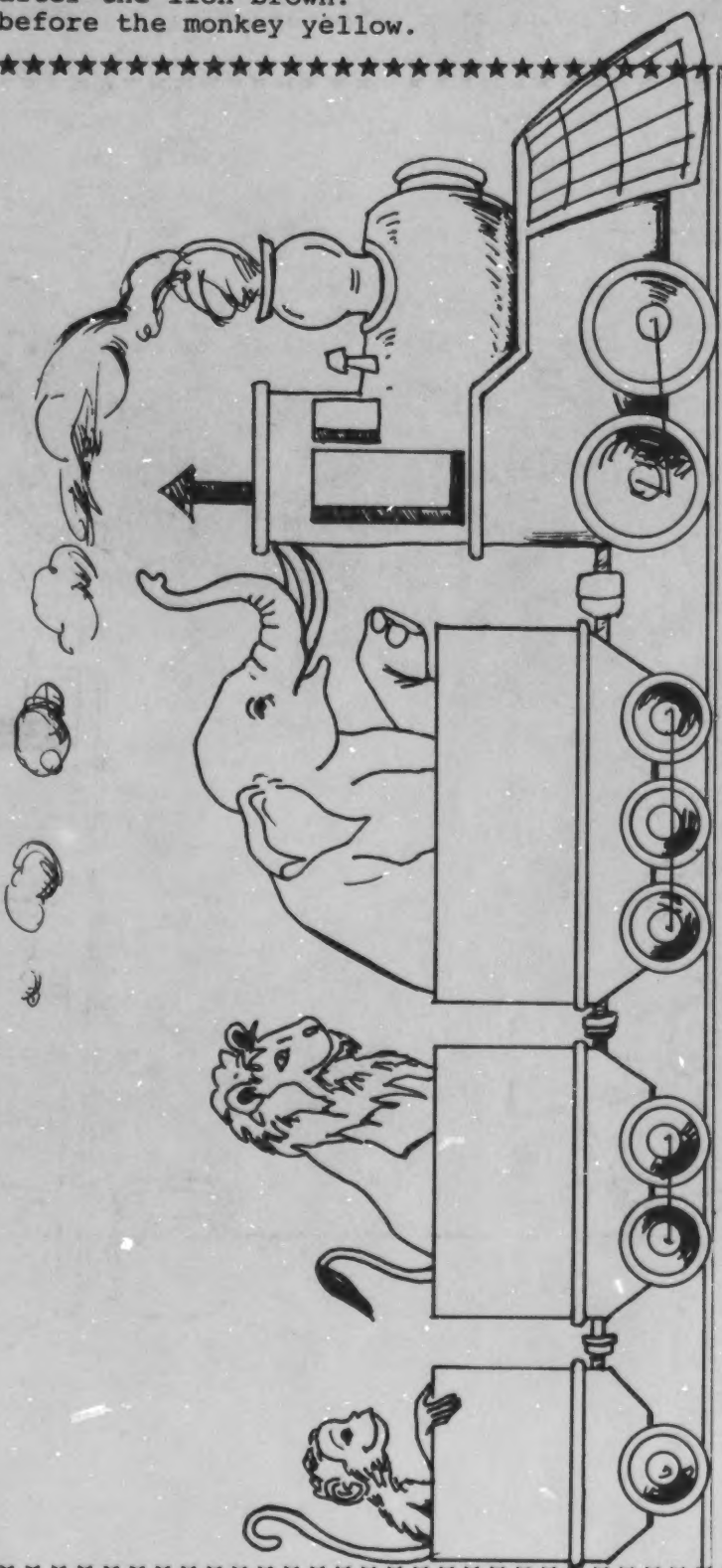
Color the painter who is at the top of the ladder.
Color the can of paint at the bottom of the ladder.



P.O. 0.01.09.02

NAME: _____ CLASS: _____

Color the animal before the lion gray.
Color the animal after the lion brown.
Color the animal before the monkey yellow.



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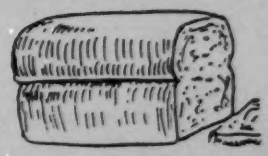
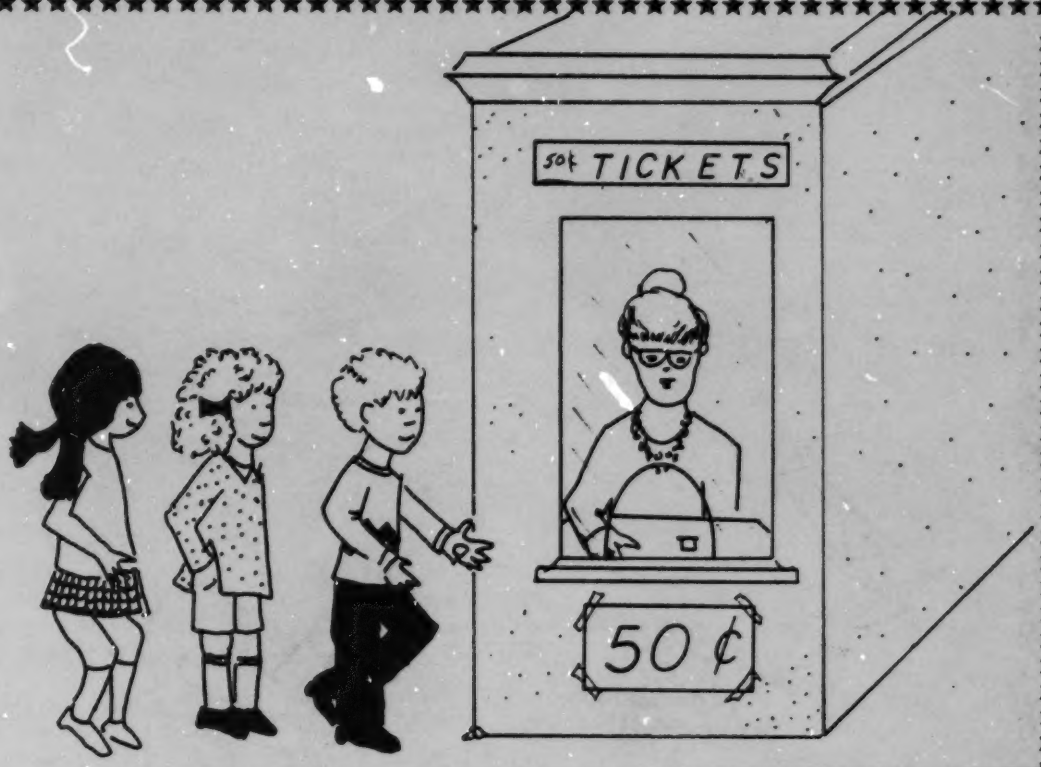
P.C. 0.01.09.02

NAME: _____ CLASS: _____

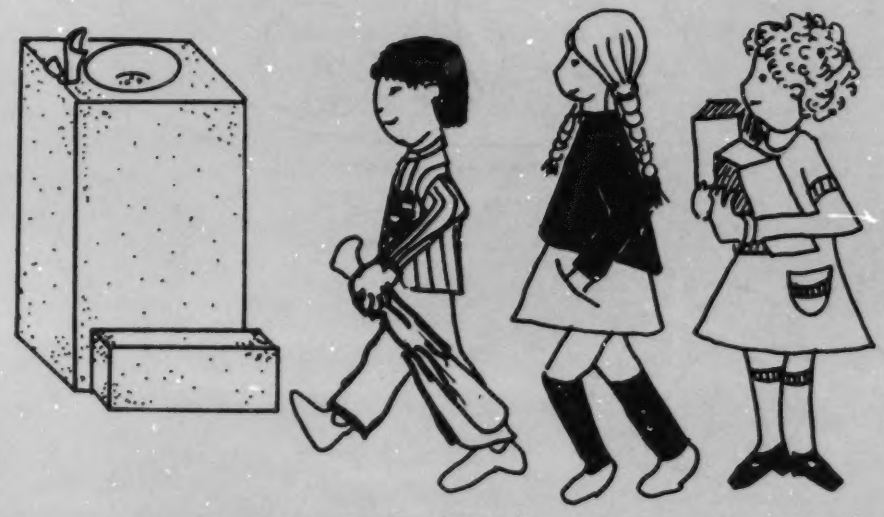


1. Color the student who is on line after the boy.
2. Color the student who is on line before the girl holding packages.

1.



2.



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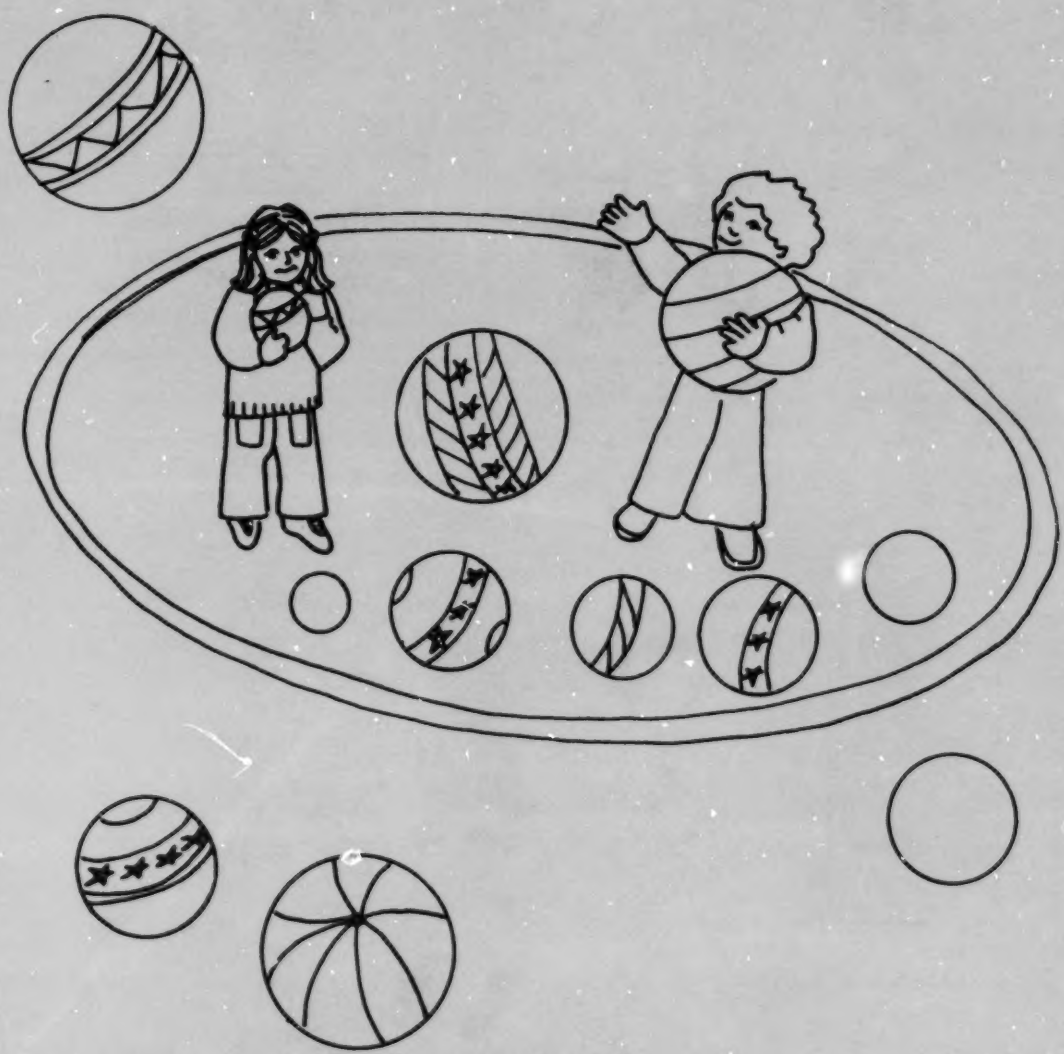
P.O. 0.01.09.03

NAME: _____ CLASS: _____

Color the balls which are inside the ring.



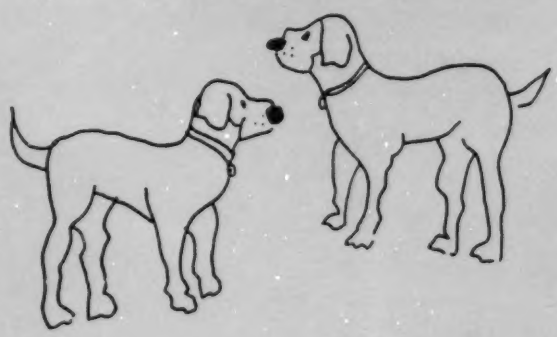
225

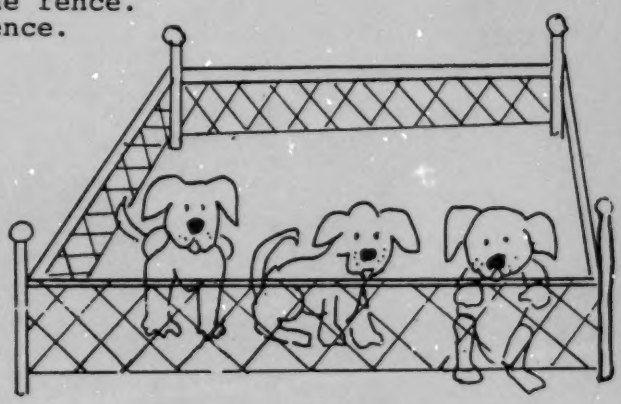
P.O. 0.01.09.03

NAME: _____ CLASS: _____

Circle the marbles that are inside the jar.
X the marbles that are outside the jar.

Circle the dogs that are inside the fence.
X the dogs that are outside the fence.



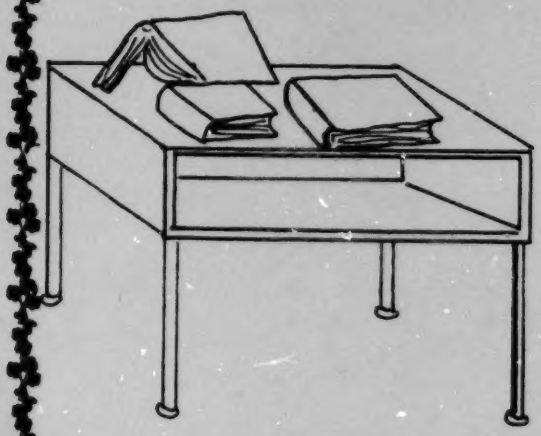


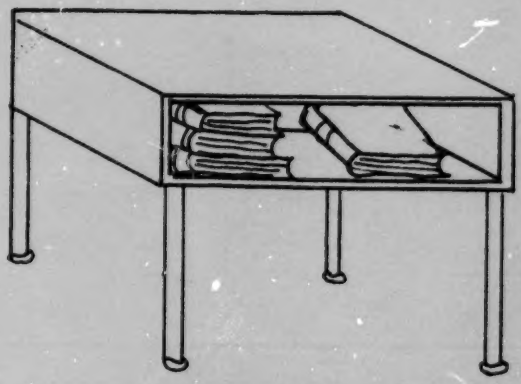
Circle the bird that is inside the cage.
X the bird that is outside the cage.

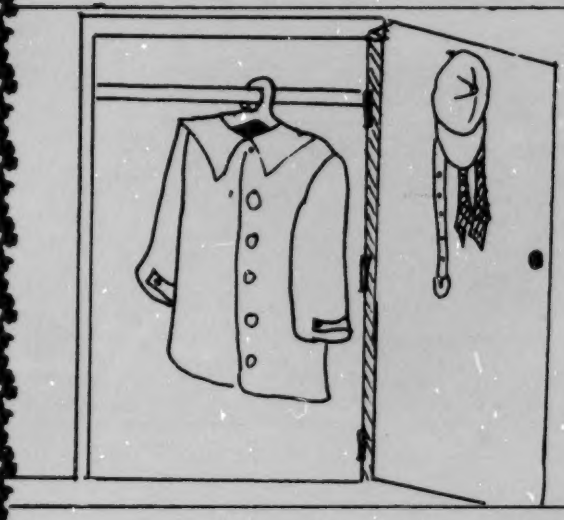
P.O. C.01.09.04

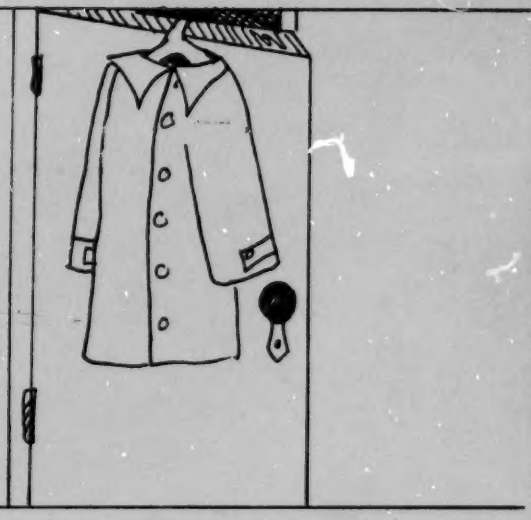
NAME: _____ CLASS: _____

Color the books which are on the desk.
Color the coat which is in the closet.
Color the spoon which is in the cup.









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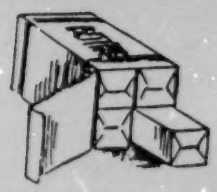
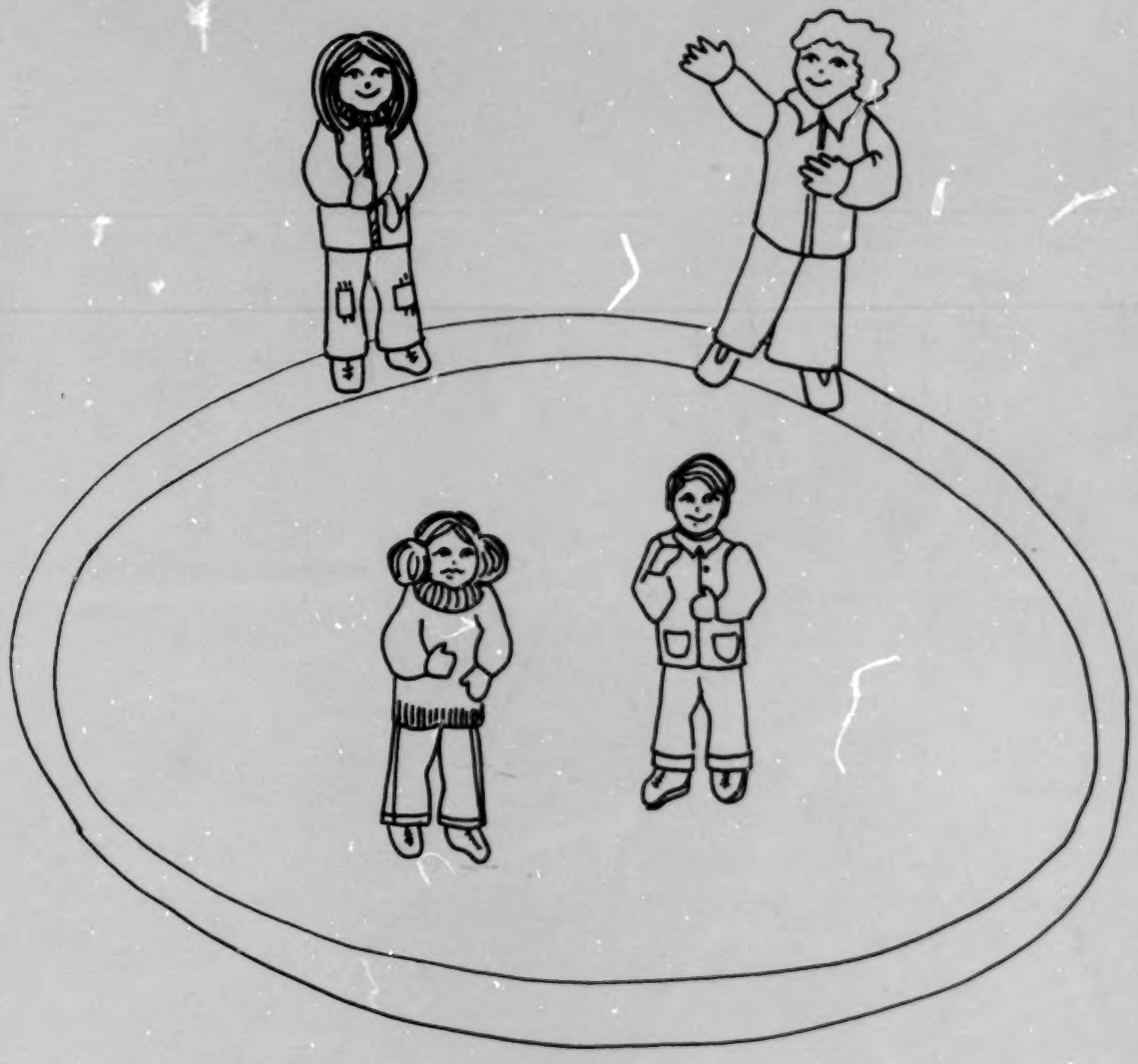
P.O. 0.01.09.04

NAME:_____ CLASS:_____



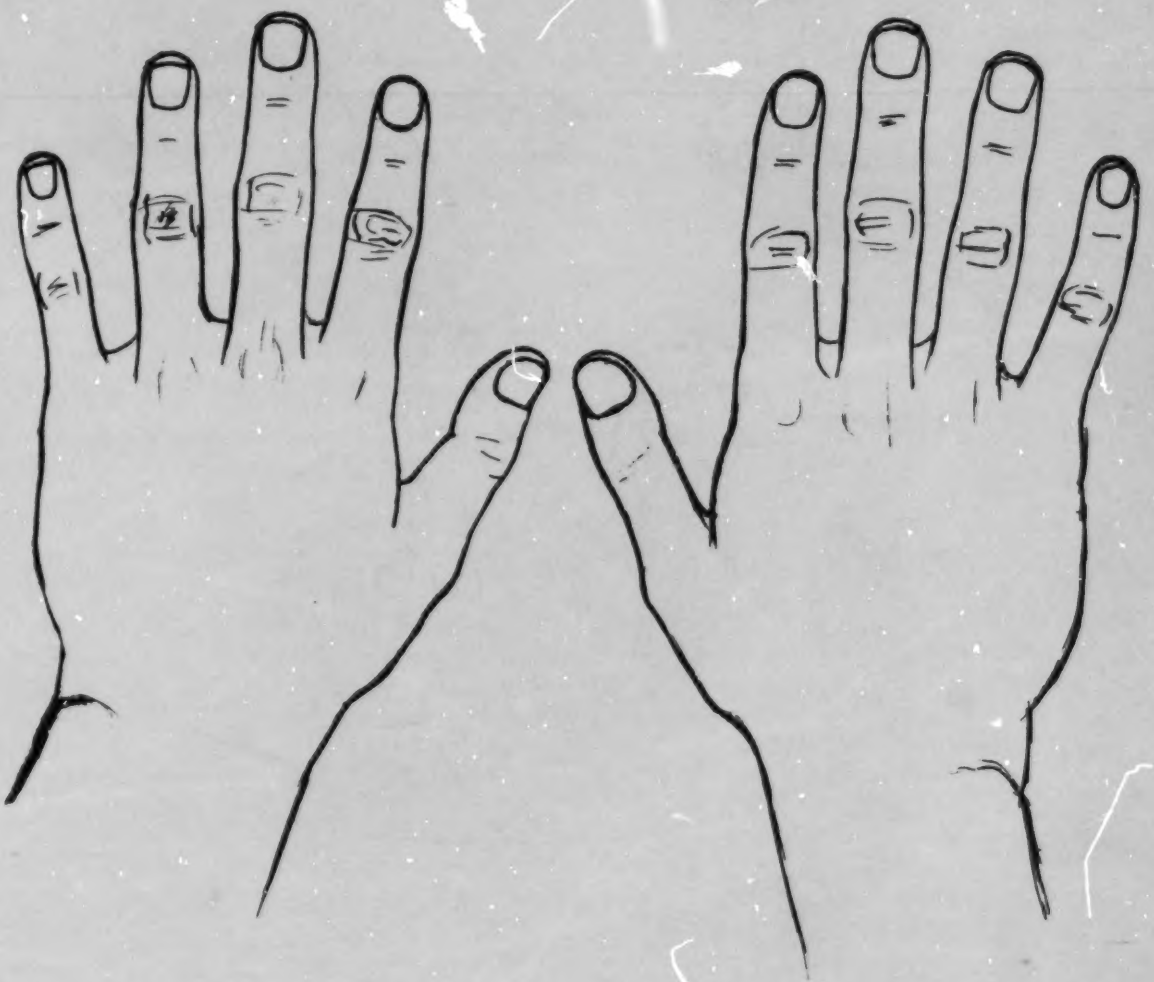
Color the students who are standing on the circle.



P.O. 0.01.09.05

NAME: _____ CLASS: _____

Draw a red ring on a finger of the right hand. Draw an X under the left hand. Draw a blue ring on a finger of the left hand. Draw an X above the right hand.



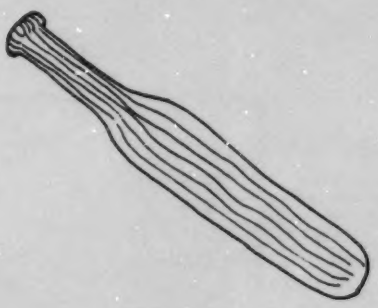
P.O. 0.01.09.06

NAME: _____ CLASS: _____

1. Draw a circle between the two boxes.
2. Draw a ball next to the bat.
3. Draw an apple between the two bananas.

1.

2.



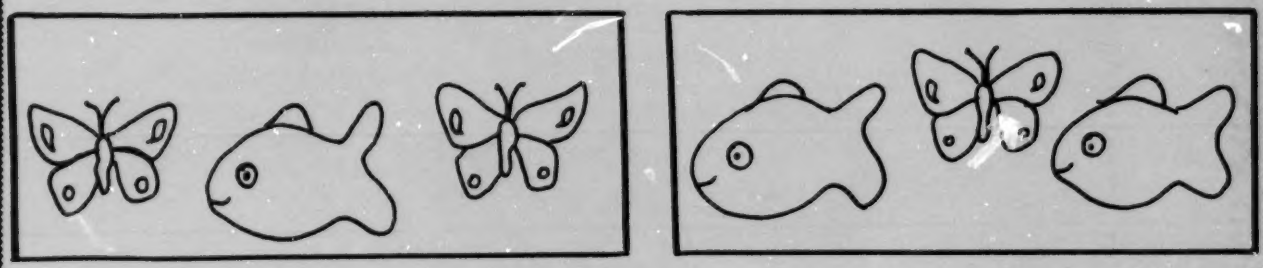
3.

P.O. 0.01.09.06

NAME: _____ CLASS: _____

1. Color the picture showing a fish between the butterflies.
2. Color the picture showing a star between the balloons.
3. Color the bird which is next to the lion.

1



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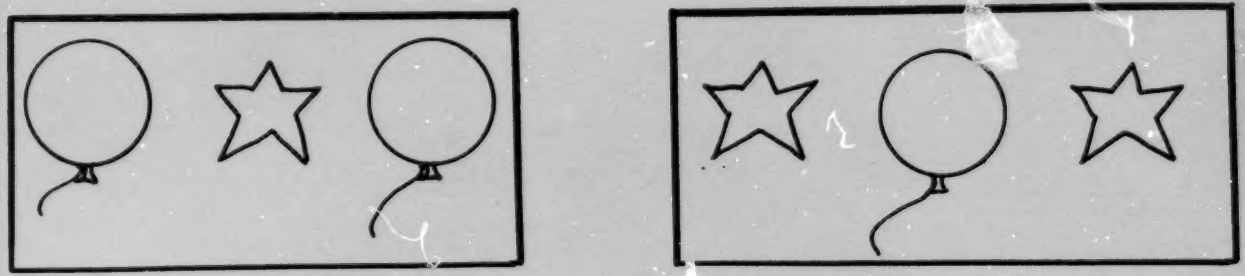

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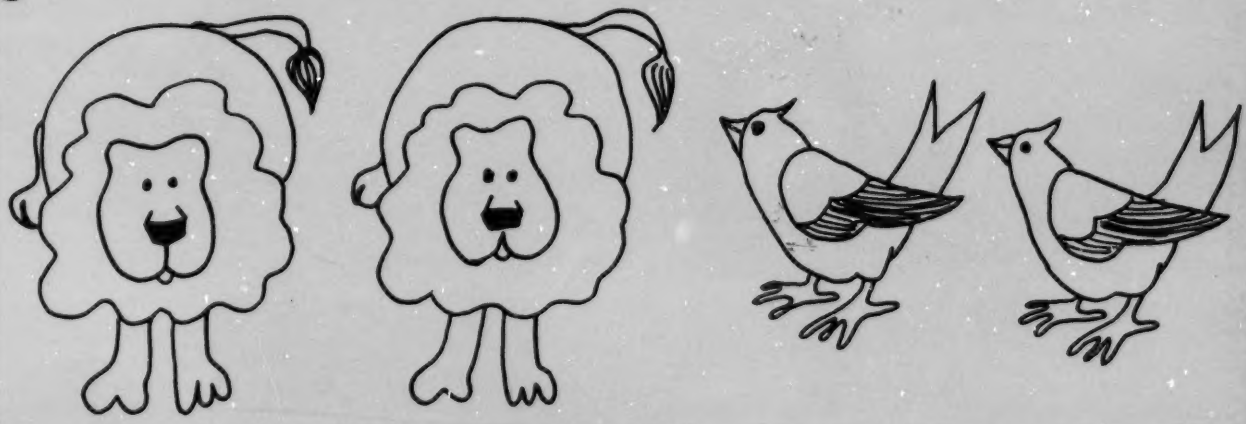
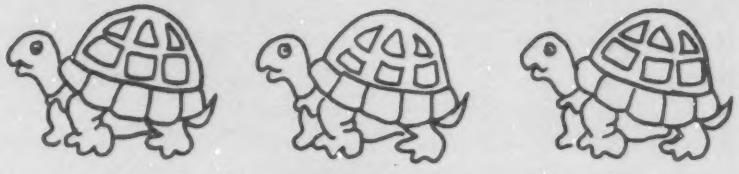
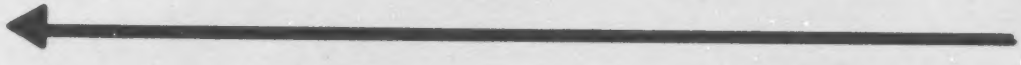


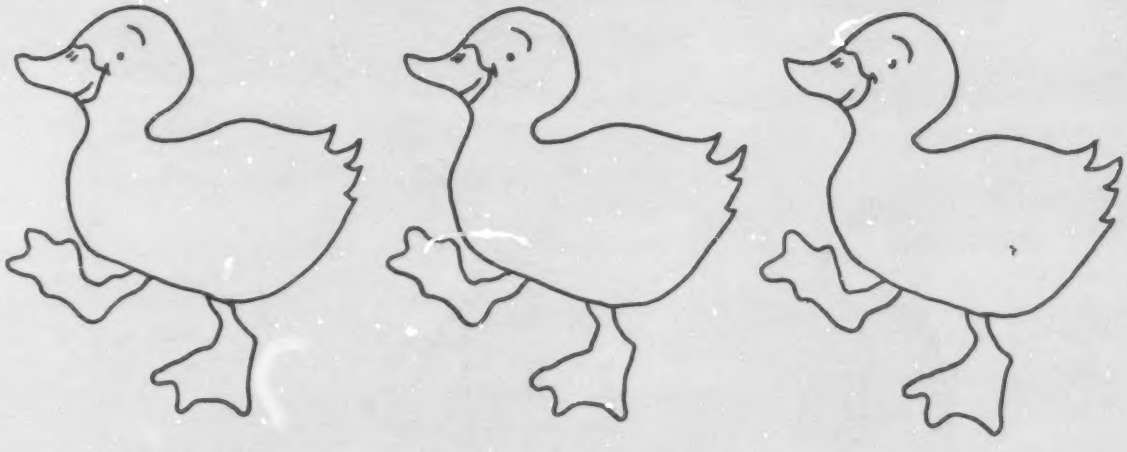
P.O. 0.01.09.07

NAME: _____ CLASS: _____

Color the first animals red, the last animals blue and the middle animals yellow.



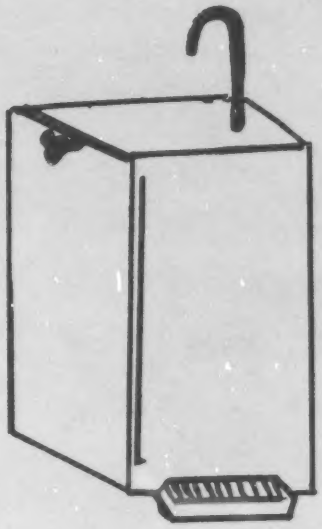




P.O. 0.01.09.07

NAME:_____ CLASS:_____

Cut and paste the youngsters next to the water fountain. Place the boy on skates first on line. Place the boy holding the balloon in the middle. Place the girl holding the bat last on line.



0.10.06 GENERAL TEMPERATURE MEASUREMENT TERMS

(3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.10.06.01 distinguish between the concepts of hot and cold;
e.g.,
Is snow hot or cold?

0.10.06.02 distinguish between cooler than and hotter than;
e.g.,
Today is cooler/hotter than yesterday.

0.10.06.03 distinguish between as cold as and as hot as.
e.g.,
Ice cream is as cold as snow.

0.10.06

VOCABULARY

TERMS

hot
cold
cooler than
hotter than
as cold as
as hot as
thermometer

GETTING STARTED

Clear a large area for movement. Ask the student to to form a circle. Say, "Let's roll snowballs. Scoop them up. Now roll them. Roll, roll, roll. Let's make them round. Oh what a lot of snow to roll. How do your hands feel after rolling snowballs? What do you think the weather is like if we have snow?"

Say, "What a beautiful hot day! We are in our swim suits. Let's go to the pool. Now, let's jump in and swim. What is the weather like if we can go swimming? How do you feel after swimming? How does the water feel?"

Prepare a pan of hot water, a pan of cold water and a large thermometer. Say, "This is a pan of hot water. This is a pan of cold water. How can we show which pan is hot/cold without touching it?" Show the thermometer. Say, "A thermometer shows us when something is hot or cold. The red/silver line is long when something is hot and short when something is cold." Place the thermometer into the hot water. Students should observe as the mercury rises. Say, "The red line is longer because the water is hot." Repeat this procedure with the cold water.

0.10.06

0.10.06.01 distinguish between the concepts of hot and cold

STRATEGY 1: Display pictures of ice cream, ice cubes, candles, a barbecue fire, and seasonal pictures of winter and summer. Say, "If the picture shows something cold, pretend to be cold." Demonstrate how to shiver. Say, "If the picture shows something hot, pretend to be hot." Demonstrate how to show perspiring from the heat. Display the pictures. Check to see whether the students are showing the correct answer.

STRATEGY 2: Display a chart with two columns labeled hot and cold, and pictures which represent items associated with the terms hot or cold, e.g., ice cream, ice cubes, fire, a snowy day, a scene at the beach, candles. Display each picture and ask, "Does this picture show hot or cold?" Ask students to place the picture in the appropriate column.

0.10.06.02 distinguish between cooler than and hotter than

STRATEGY 1: Prepare 3 glasses of water - one containing ice cubes, one containing tap water and another which has hot water. Display the glass of water containing ice cubes. Say, "Who can tell us something about this water?" Elicit that it is cold. Ask, "How do we know it's cold?" (the ice cubes.)

Show the glass with tap water. Ask a student to feel the glass and tell which glass is cooler. Say, "Ice water is cooler than regular water."

STRATEGY 1: cont'd — Repeat this procedure with the glass of hot water and the glass of tap water to discuss hotter than.

STRATEGY 2: During cooking activities, display foods such as vegetables, apples and eggs. Ask each student to examine the foods being prepared. Before the foods are cooked, emphasize that they are cool/cold. Wash all of the above foods. Prepare soup from the vegetables, applesauce from the apples or scrambled eggs. While the food is cooking say, "The soup is hotter than the raw vegetables. (The applesauce is hotter than the apple. The scrambled eggs are hotter than the raw eggs.)"

0.10.06.03 distinguish between as cold as and as hot as

STRATEGY 1: Prepare and display 4 pictures of hot items, 4 pictures of cold items and 2 large coffee cans -one showing a picture of something hot and the other showing picture of something cold, e.g., fire, ice, tea kettles with boiling water, ice cream or steaming hot soup. Place the picture in the coffee can representing "hot as." Hold up the picture of the hot soup and say, "This is soup. It is as hot as fire." Hold up the picture of the ice cube and say, "This ice cube is as cold as snow." Place the picture in the coffee can representing "cold as". Repeat this sorting procedure for all the pictures. Ask students to discuss their comparisons after they have finished sorting the pictures.
e.g.,

Ice cream is as cold as snow.
A stove can be as hot as fire.

STRATEGY 2: Prepare accompanying workbook page, pictures of hot and cold items and 6 red and 6 blue discs for each student. Hold up the picture of fire and say, "The fire is hot." Hold up a picture of hot chocolate and say, "The hot chocolate is as hot as the fire." Hold up a picture of the ice cube and say, "The ice cube is cold." Hold up an ice cream picture and say, "The ice cream is as cold as the ice cube." Repeat this procedure for each picture.

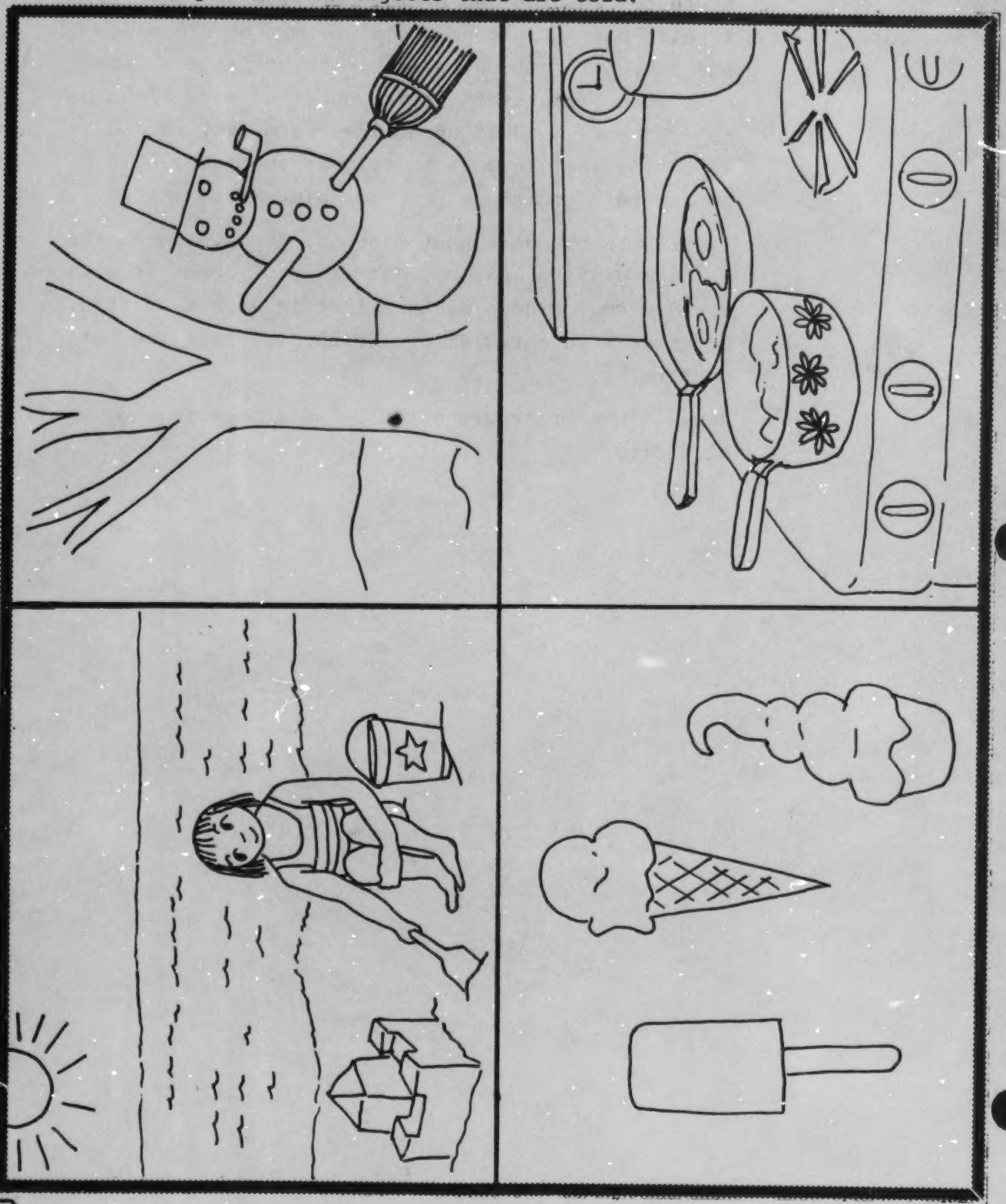
Distribute the worksheet page and discs. Touch the picture of fire and say, "It is hot. Cover it with a red disc. Find a picture that is as hot as fire. Cover it with a red disc. Which picture is as hot as fire?"

Repeat this procedure with the cold picture and blue disc.

P.O. 0.10.06.01

NAME: _____ CLASS: _____

Place an X over the pictures of objects that are hot.
Circle the pictures of objects that are cold.



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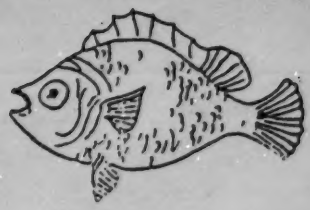
P.O. 0.10.06.01

NAME: _____ CLASS: _____



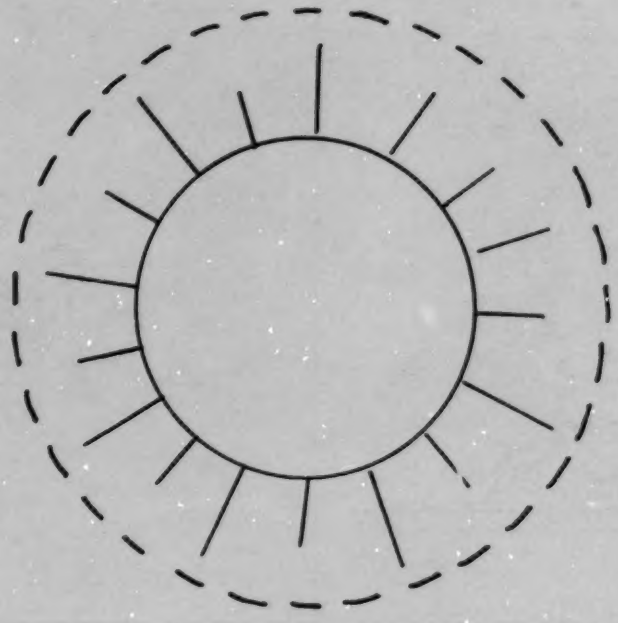
Place an X over the pictures of objects that are hot.
Circle the pictures of objects that are cold.

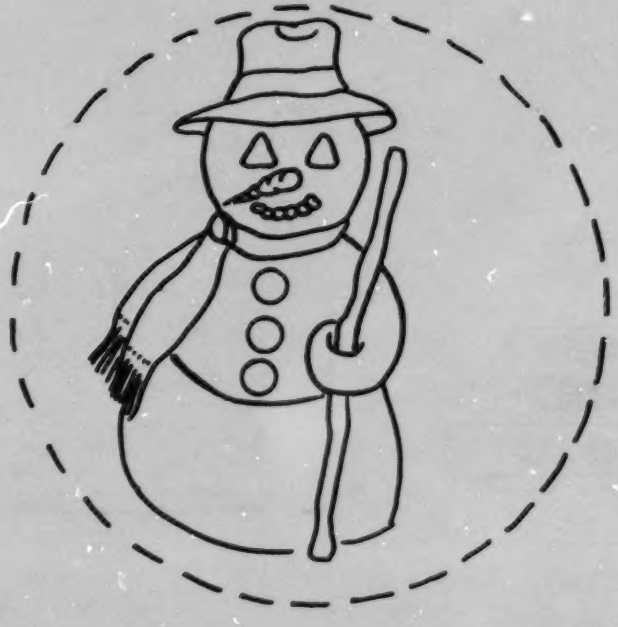
P.O. 0.10.06.02

NAME: _____ CLASS: ____

Color the sun yellow.

Cut and paste the sun and the snowperson on the next page.





P.O. 0.10.06.02

NAME: _____ CLASS: _____

Match the pictures to the correct words and paste them on the page.

243

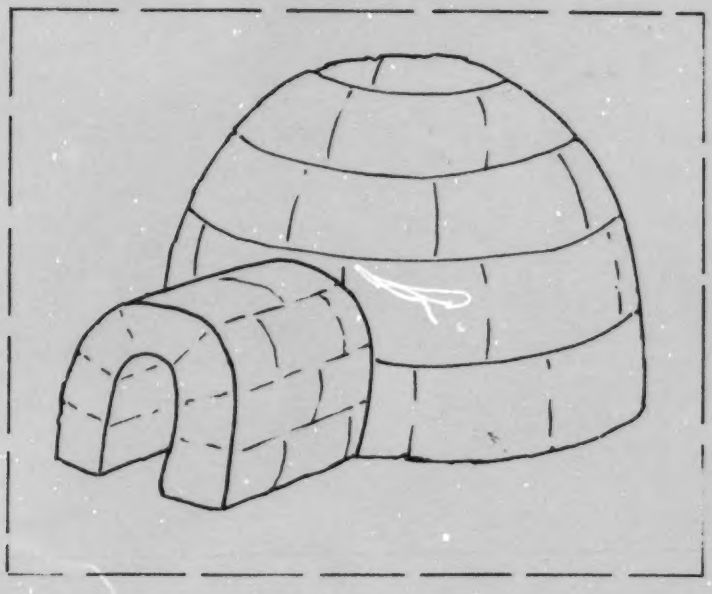
244

THE SUN is hotter than THE SNOWPERSON.

P.O. 0.10.06.02

NAME: _____ CLASS: ____

Color the houses.
Cut and paste them on the next page.



P.O. 0.10.06.02

NAME: _____ CLASS: _____

Match the houses to the correct words and paste them on the page.

246

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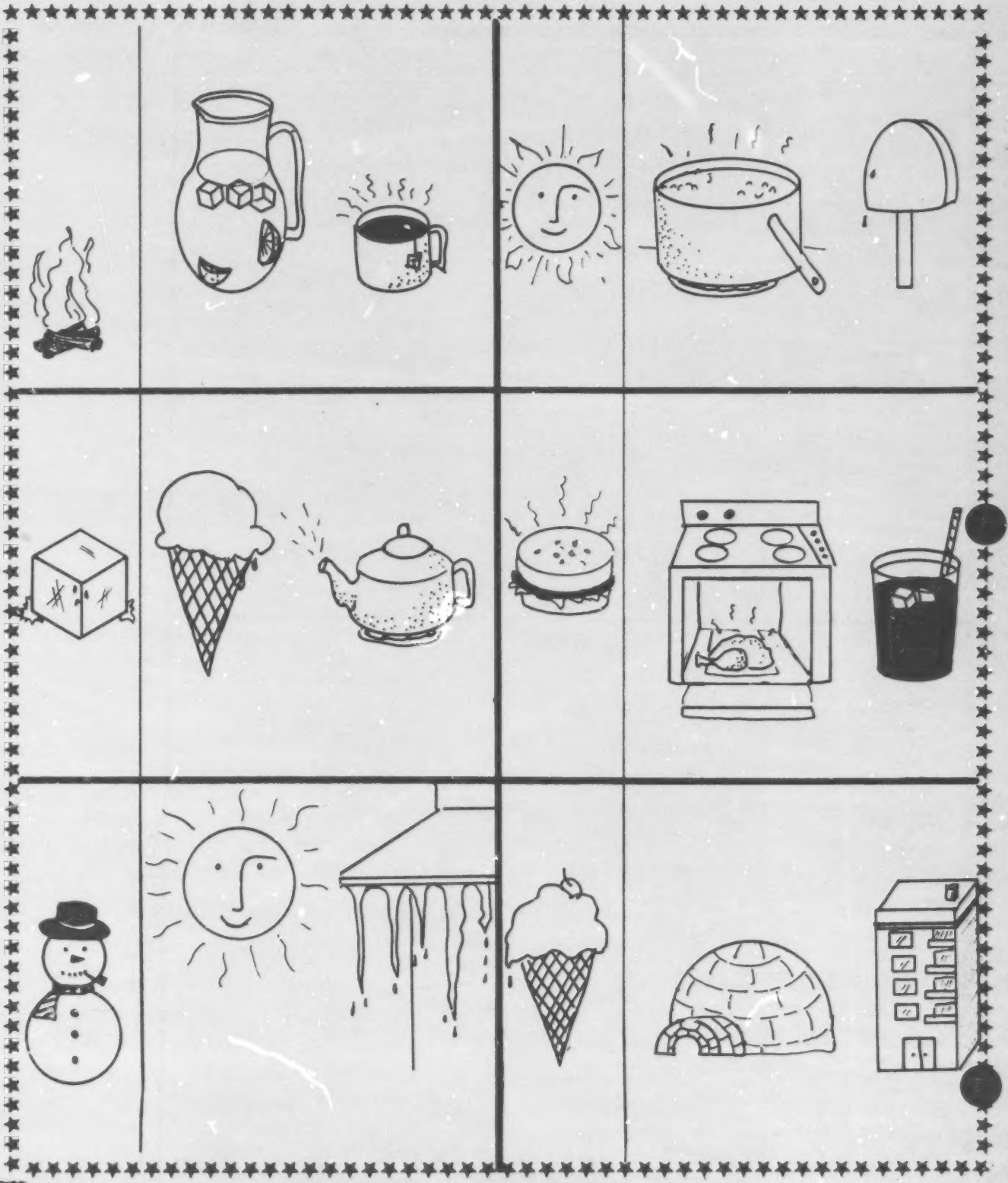
THIS HOUSE is cooler than THIS HOUSE.

P.O. 0.10.06.03

NAME: _____ CLASS: _____

Place red discs on pictures which are as hot as ...
Place blue discs on pictures which are as cold as ...



0.10.07 SIZE CONCEPTS

(2-3 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.10.07.01 distinguish among the degrees of size - large/larger/largest and small/smaller/smallest;
e.g.,

large larger largest

small smaller smallest

0.10.07.02 distinguish among the concepts of long/longer/longest and short/shorter/shortest.
e.g.,

long longer longest

short shorter shortest

0.10.07

VOCABULARY

TERMS

large/larger/largest
small/smaller/smallest
long/longer/longest
short/shorter/shortest
big/little
large/small

GETTING STARTED

Display big and little objects which will later be placed in a tissue box. Point to the big objects and say, "These are big." Repeat for the little objects. Distribute a tissue box containing a big and little object to each student. Say, "Close your eyes and reach into the box. Select the big object." Repeat this procedure for the little objects.

Prepare big and little objects for each student. Play the Look, Touch, Hold Game. Show a big object and say, "This is a big object." Show a little object and say, "This is a little object." Distribute the objects to each student. Explain to the students that on the command of "Look", they should look for a big object. On the command of "Touch", they should touch the big object without picking it up. On the command of "Hold", they will hold the big object. Begin the game.

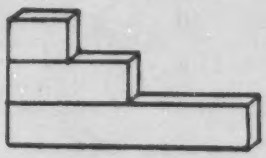
Repeat this procedure for the little object.

0.10.07

0.10.07.01 distinguish among the degrees of size - large/larger/largest and small/smaller/smallest

STRATEGY 1: Arrange kindergarten blocks in order, e.g., half, unit and double. Say, "How are the blocks alike? (Same shape, color and material.) How are they different?" (size) Exhibit the half and unit blocks and say, "Which block is larger?" Exhibit the unit block and the double unit block and repeat the question. Place the blocks on the table. Say, "Who can find the smallest block? How can we find a block which is larger?" Show that part of the larger block still extends when the small block is put on top. Hold up the double unit block and say, "This is the largest block. It reaches further than either block when they are stacked." Demonstrate.

e.g.,



Repeat this procedure using the terms small, smaller and smallest.

STRATEGY 2: Provide each student with 3 large stacks, each containing 5 interlocking blocks and 6 loose blocks. Hold up one stack of 5 blocks and say, "This is a large stack of blocks. Make the next stack larger than the first without using all the loose blocks." How do we know which stack is larger? How can we make the last stack largest of all?" When all the stacks have been built, ask the students to identify each stack as large, larger or largest.

Repeat this procedure using the terms small, smaller and smallest.

0.10.07

0.10.07.02 **distinguish among the concepts of long/longer/longest and short/shorter/shortest**

STRATEGY 1: Prepare three trays - the first with long straws, the second with the longer straws and the third with the longest straws. Distribute one long straw to each student and say, "This straw is long." Take a straw from the second tray and say, "This straw is longer than the straw on your desk." Demonstrate and distribute one of these straws to each student. Say, "Line up the straws on your desk. How can we tell which straw is longer?" Elicit that the longer straw reaches further when the ends are matched. Place the third tray on the table and say, "Take a straw. Line it up with the other two straws. This is the longest straw." Point to the long, longer and longest straws, first in turn and then at random. Say, "How can we tell that this is the long (longer or longest) straw? The longest straw reaches the furthest when the ends of each straw are matched."

Repeat this procedure using the terms short, shorter and shortest.

STRATEGY 2: Prepare large pictures of a youngster with 3 different lengths of hair and the accompanying worksheet. Display each picture when appropriate. Say, "This is a picture of Tony with short hair. One day Tony felt very warm and asked his mother if he could cut his hair. He went to have his hair cut. This is how he looks with shorter hair. He was still unhappy so he went back and had his hair cut again. This is how he looked. Now he's happy because his hair is the shortest it's ever been."

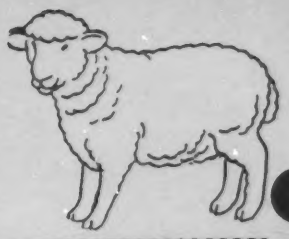
STRATEGY 2: cont'd

Distribute the worksheet. Point to each picture in turn and say, "Color the picture of Tony with short hair. Color the picture of Tony with shorter hair. Color the picture of Tony when his hair is its shortest."

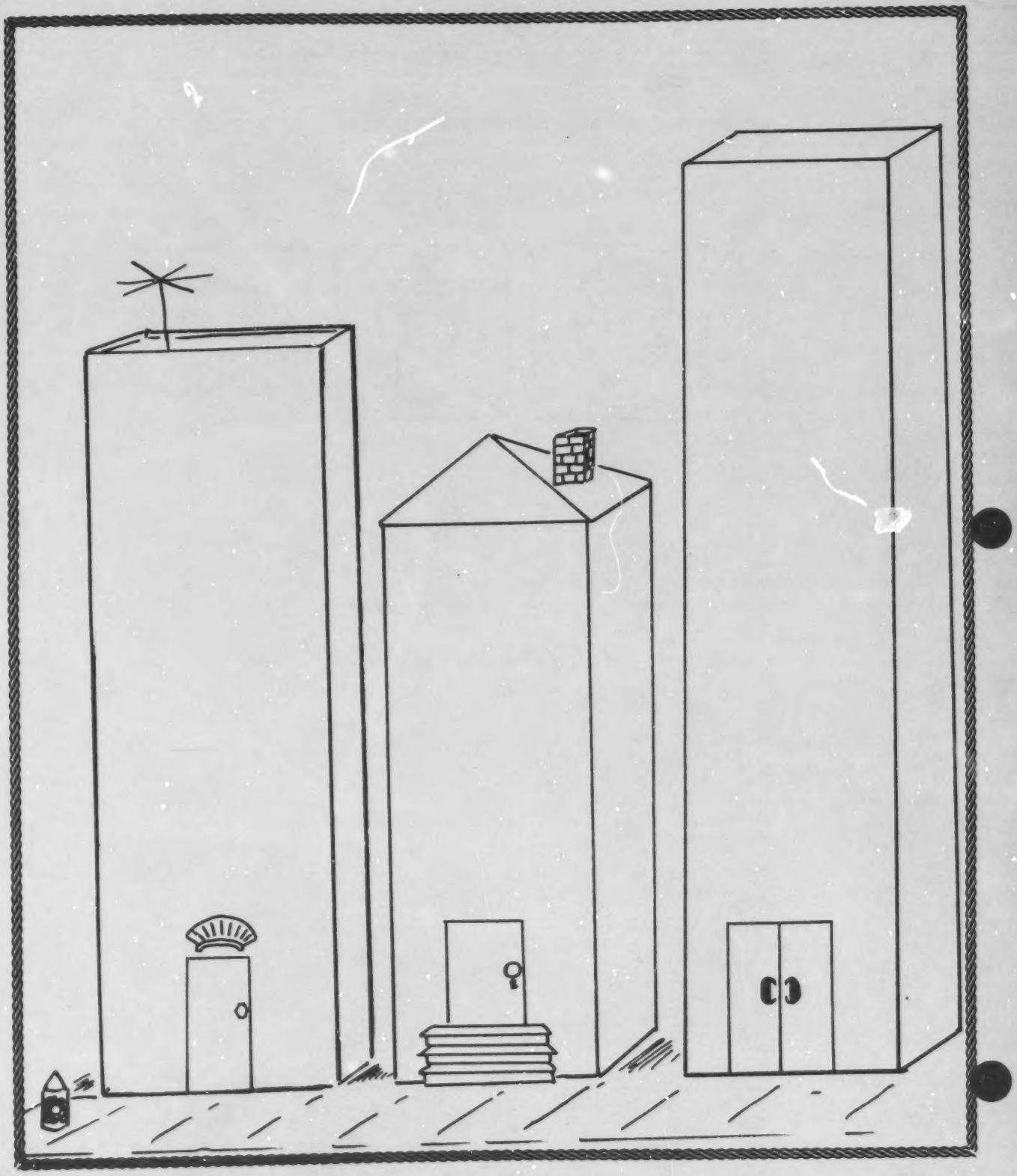
Repeat this procedure using the terms long, longer and longest.

P.O. 0.10.07.01

NAME: _____ CLASS: _____



Draw windows on the largest building.



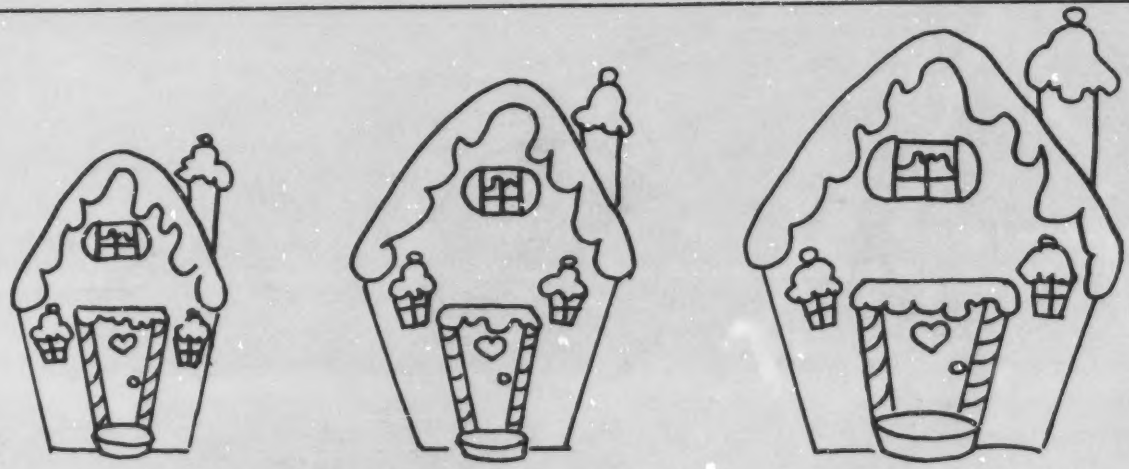
P.O. 0.10.07.01

NAME:_____ CLASS:_____

Color the baking pan that is large, but not the larger or largest.

Color the larger gingerbread cookie, but not the largest.

Color the largest gingerbread house.



P.O. 0.10.07.01

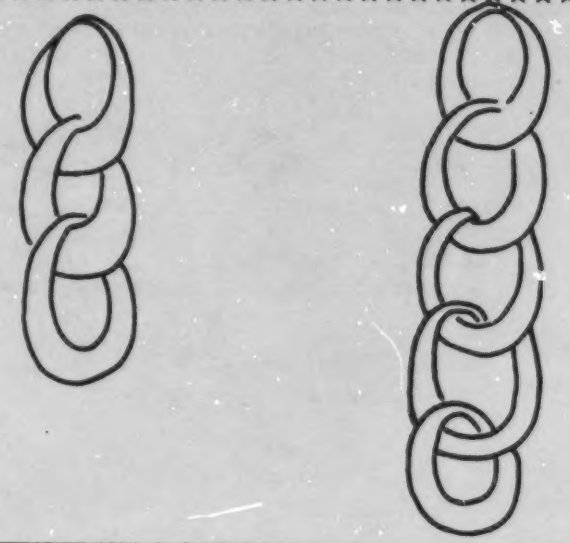
NAME: _____ CLASS: _____

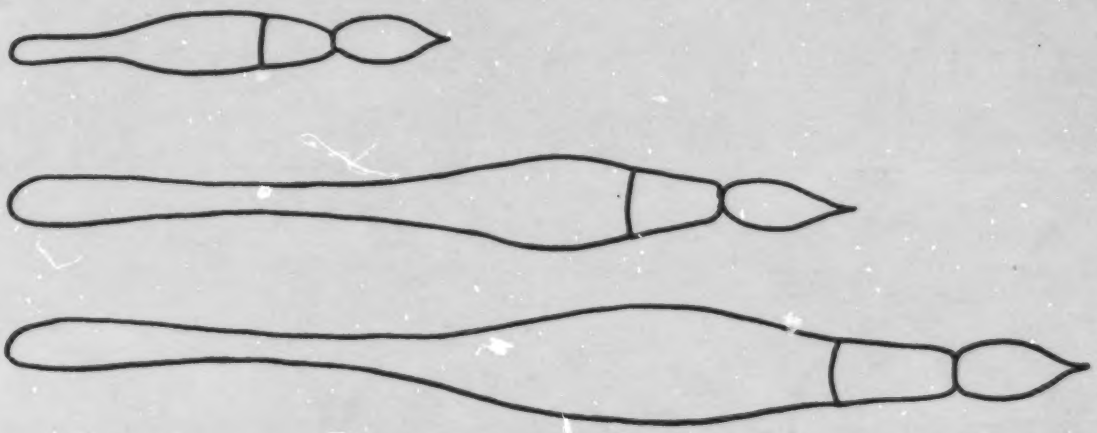
Draw a hat on the smaller clown. Draw a flag on the smallest tent. The shaded ball is a small ball, but not the smaller or smallest. Color the small ball.

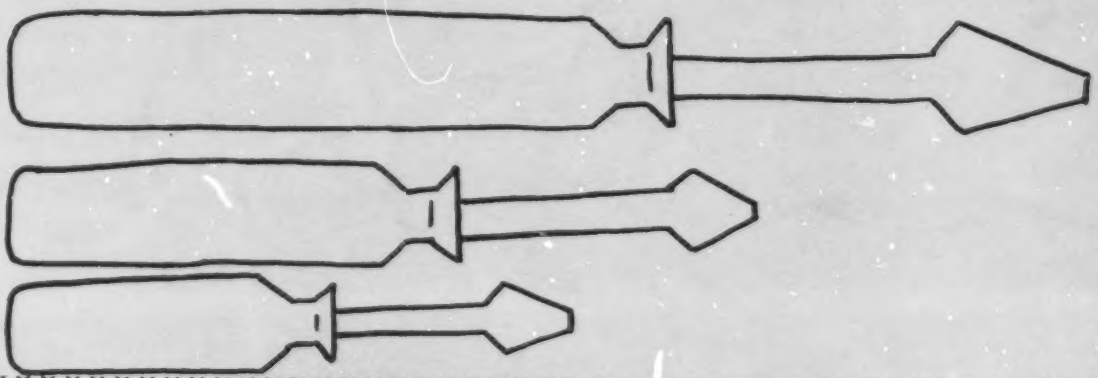
P.O. 0.10.07.02

NAME: _____ CLASS: _____

Color the longer chain.
Color the longest paint brush.
Color the longest screw driver.







P.O. 0.10.07.02

NAME: _____ CLASS: _____

A. Color the pictures in order from short to shortest.

B. Color the pictures in order from long to longest.

0.10.08 MONEY: PENNIES

(2 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.10.08.01 recognize and identify the value of the penny as 1 cent and the ¢ sign;
e.g.,
1 penny is the same as 1 cent or 1¢.

0.10.08.02 count and write the value through 4 cents or 4¢;
e.g.,

are 4 pennies

0.10.08.03 solve story problems related to skills learned in this module.
e.g.,
Lydia wanted to buy a balloon that costs 4¢. Draw the number of pennies she will need.

0.10.08

VOCABULARY

TERMS	**SYMBOLS**
penny(ies), cent(s)	¢
cost	
coin	
sign	

GETTING STARTED

Say, "The ice cream truck comes to your street while you are playing. What do you do? Why? (Get money if I want ice cream.) Where else do you need money?" (movies, supermarket, candy store)

Read the book Two is a Team by Jerrold Beim. Say, "Why did the boys have to work together?" (They had to earn money to pay for the damage they had done.) Reinforce concepts of working together and earning money to repay a debt.

0.10.08

0.10.08.01 recognize and identify the value of the penny as 1 cent and the ¢ sign

STRATEGY 1: Show a penny and say, "Who knows the name of this coin? It is a penny. It is also called a cent. There is a special sign/symbol we use to show cents." Write a large cents sign on the chalkboard. Say, "The cent sign is a "c" with a straight line that goes through it from top to bottom. Let's make a cent sign in the air. It takes 2 strokes -first the c, then the up and down line." Have students practice writing the sign on the chalkboard and at their seats.

STRATEGY 2: Display 3 flannel backed pennies, heads and tails, cents sign on the flannel board. Point to a penny and say, "This is a penny or a cent. When we write or say cent or cents, we can use the symbol ¢ for the word." Point to the cents sign and say, "¢ means cents." Ask the students to count the pennies. Record the amounts elicited from the students using the ¢ symbol.
e.g., 3¢ 2¢ 1¢

Repeat this procedure using a different amount of pennies.

0.10.08.02 count and write the value through 4 cents or 4¢

STRATEGY 1: Prepare 4 pennies. Place 2 pennies in a small cup. Shake the cup and pour out the coins. Ask a student to count the coins and tell their value. Write the value on the chalkboard. Repeat this procedure using 1¢ through 4¢.

0.10.08

STRATEGY 2: Prepare and distribute four cups labeled 1¢, 2¢, 3¢ and 4¢ and 10 pennies to each student. Demonstrate as you say, "Hold up the cup that shows the 1¢ sign. One cent means one penny. How many pennies should we put into this cup?" Have the students put one penny into the cup. Repeat this procedure with the remaining cups and pennies.

0.10.08.03 solve story problems related to the skills in this module

STRATEGY 1: Set up a school supply store in the classroom with such items as crayons, eraser, pencil. Prepare a box filled with pennies. Label each item 1¢, 2¢, 3¢ or 4¢. Select 4 students to shop at the store. Say, "You need to buy an eraser. How much money do you need?" Each student should have a chance to count out the correct number of pennies.

STRATEGY 2: Prepare 10 pennies. Distribute a magazine, blank price tags, scissors, paste and paper to each student. Say, "Cut out pictures of toys or foods. Paste the pictures on the paper and make price tags for each item costing 1¢ to 4¢." When this task is completed, ask questions about each student's pictures. e.g., Billy wants to buy a pencil. How much money does he need? Have another student count and show the number of coins.

P.O. 0.10.08.01

NAME: _____ CLASS: _____

Match the price tags to the coins.

4 ¢	
2 ¢	
1 ¢	
3 ¢	
4 ¢	

P.O. 0.10.08.01

NAME:_____ CLASS:_____

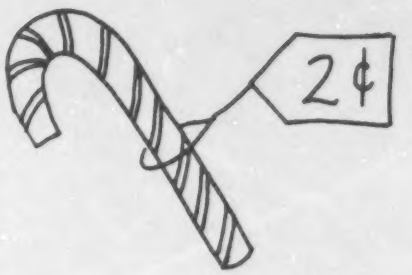
Circle the correct amount of pennies.

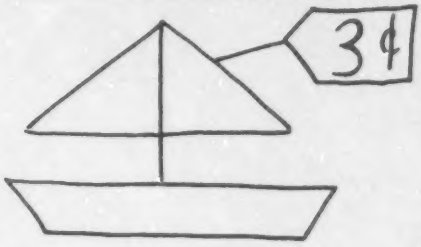
4	
2	
1	
3	
2	
4	

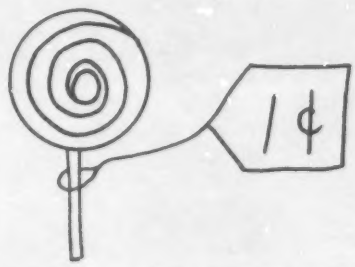
P.O. 0.10.08.02

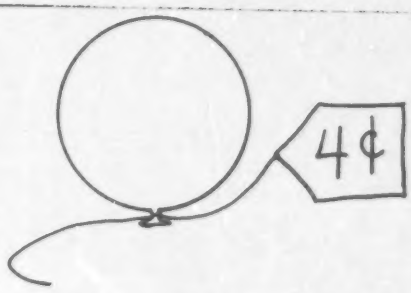
NAME: _____ CLASS: _____

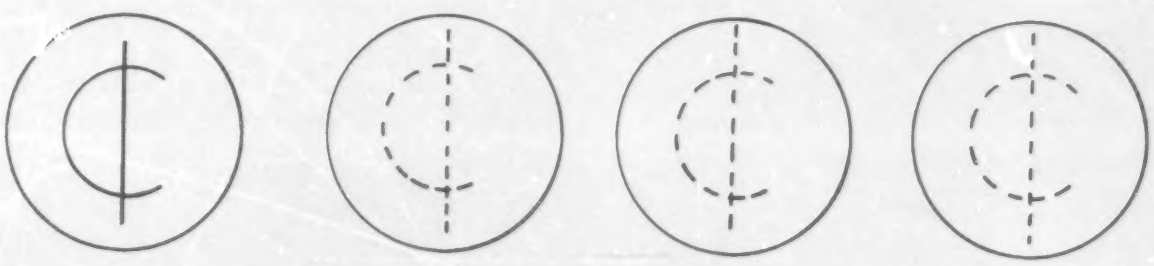
Match the price tags to the coins.
Trace the ¢.











P.O. 0.10.08.02

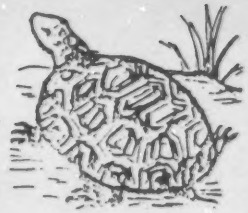
NAME: _____ CLASS: _____

Count. Write the amounts.

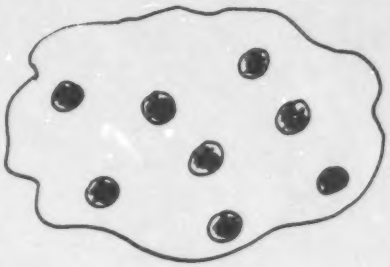
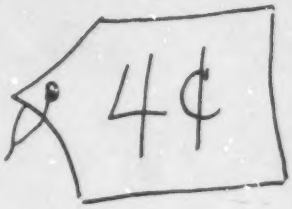
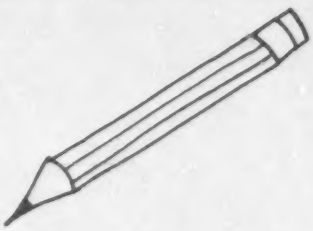
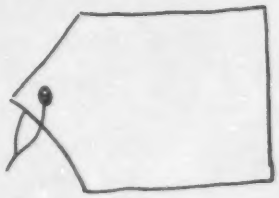
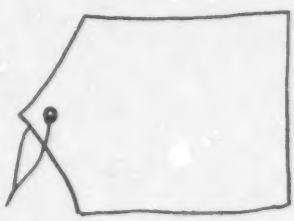
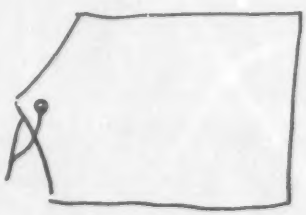
4 ¢

P.O. 0.10.08.03

NAME: _____ CLASS: _____



Count the pennies. Write the amount on the price tag.

P.O. 0.10.08.03

NAME: _____ CLASS: _____

Listen to the story.
Then, circle the pennies.

1. Tom bought an eraser for 4 cents. He paid for it with four pennies.

2. Jenny bought a pencil. The pencil cost 3 cents. She paid for it with 3 pennies.

3. Sam bought a crayon. The crayon cost 2 cents. He paid for it with 2 pennies.

4. Gloria bought a stamp. The stamp cost 1 cent. She paid for it with 1 penny.

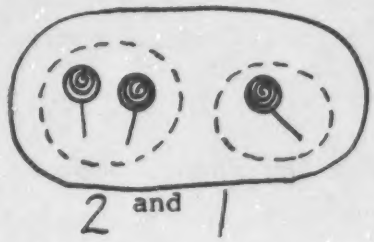
0.02.01 ADDITION

(3-4 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.02.01.01 recognize that addition is a union of sets;
e.g.,



0.02.01.02 recognize that when two (non-empty) groups of objects are put together, the resulting group has more objects than either of the two original groups.
e.g.,

0.02.01

VOCABULARY

TERMS

addition	in all
sets	add
joining	and
altogether	are

GETTING STARTED

Distribute an empty crayon box and four crayons to each student. Hold up an empty crayon box and have students count in unison as they place each crayon into their box.

Teach this poem and then dramatize.

Big clouds are in the heavens and the sky is blue.
Rabbits come hopping
I can see two.
They hop to the garden and what do they see?
A rabbit nibbling cabbage,
and that makes three.
A rabbit nibbling lettuce,
and that makes four.
1,2,3,4 and are there any more?*

*Adapted from Rhymes for Learning Times,
Louise Binder Scott,
T.S. Denison and Co., Inc.,
Minneapolis, Minn. 1983

0.02.01

0.02.01.01 recognize that addition is a union of sets

STRATEGY 1: Distribute red, blue, and green crayons, a paper plate with predrawn lines and four buttons or discs to each student. Ask the students to color the paper plates as shown.

Say, "Place your paper plate in the middle of your desk and your counters at the top of your desk. Place two counters in the red part and one counter in the green part." Elicit the amount of counters in each group. (Emphasize that these are separate groups.) Say, "Now move the two counters to the blue part. Take your one counter and place it in the blue part. How many counters are in the blue part? We now have a group of three counters. When we join groups, we call it addition."

Repeat this procedure with groups containing other amounts through 4.

STRATEGY 2: Distribute two 6" paper plates, an empty margarine container and 3 discs to each student. Say, "Put one disc on one of the plates. Put two discs on the other plate. How many discs are in each group? (Emphasize that these are separate groups.) Move the discs from both plates to the container. How many discs are in the container? Now we have a group of three discs. When we join groups we call it addition." Repeat this procedure with other groups of objects through 4.

0.02.01.02 **recognize that when two (non-empty) groups of objects are put together, the resulting group has more objects than either of the two original groups**

STRATEGY 1: Distribute four red and four green paper circles, and a wool or string loop to each student. Say, "Place your paper circles at the top of the desk and the loop in the middle of the desk. Make a group of two red circles and a group of two green circle on your desk. Place the extra circles in your desk. We now have a group of 2 and a group of 2. Join the groups and place them in the loop. e.g.,

Is the group of circles in the loop more than the group of red circles? ...more than the group of green circles?"

Repeat this procedure. Allow the students an opportunity to give the directions.

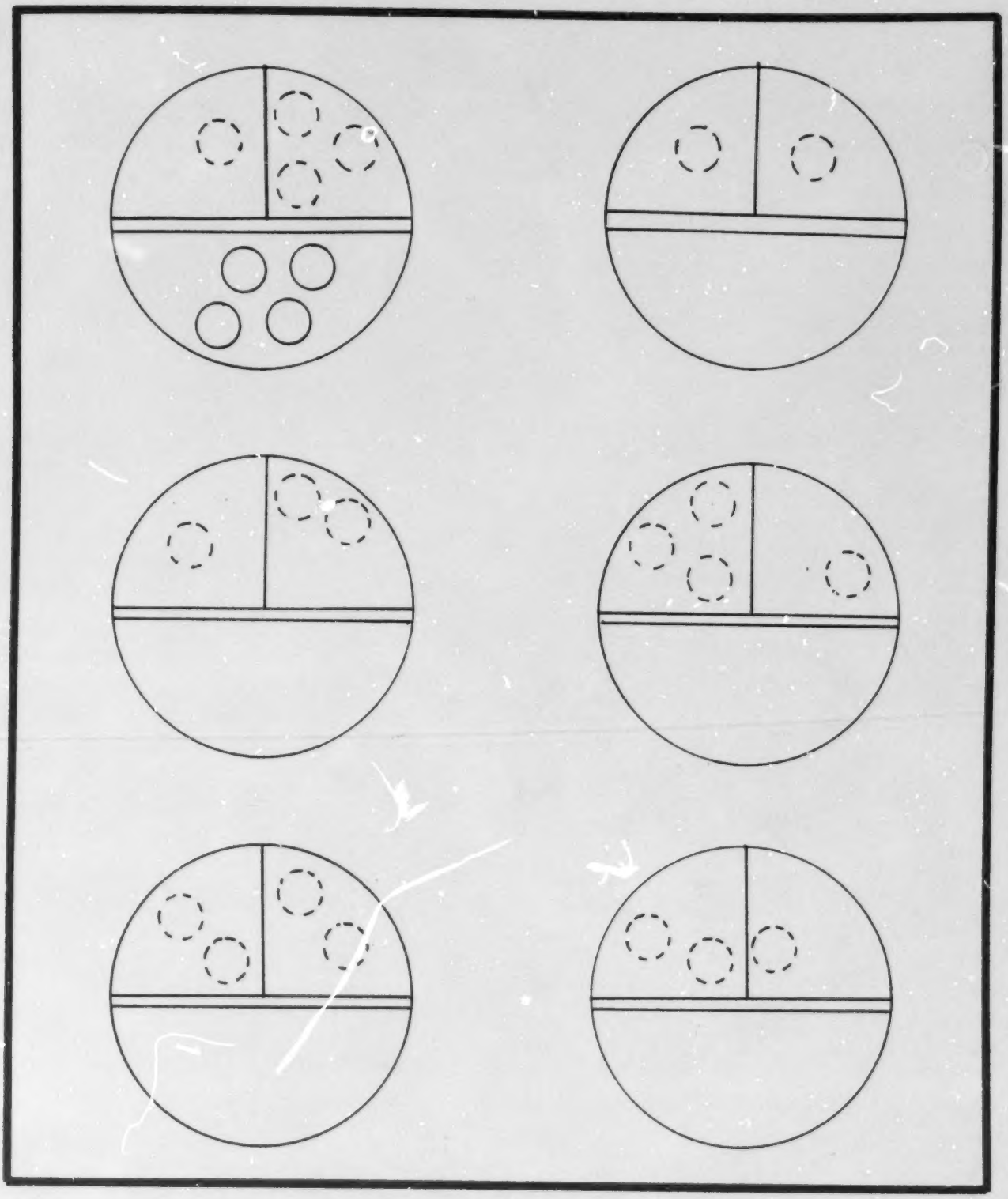
STRATEGY 2: Prepare cardboard fish figures and a fishing pole (ruler, string, magnet, and paper clip). Arrange the fish figures, having a paper clip attached to each, in a shallow box. Tie a clip to the string and a ruler to the other end of the string. Ask a student to go fishing twice placing the catch in separate groups. Say, "How many fish did you catch the first time? How many fish did you catch the second time?" Ask the students to put the two groups together and say, "Do you have more fish now than you had in either group?"

0.02.01.01

P.O. _____

NAME: _____ CLASS: _____

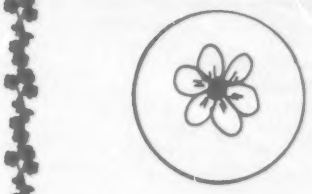
Trace the dots in the first part of the circle. How many in that group?
Trace the dots in the second part of the circle. How many?
Draw a group of dots to show how many there are altogether.



P.O. 0.02.01.02

NAME: _____ CLASS: _____

Draw pictures to join the groups.
X the group with the most objects.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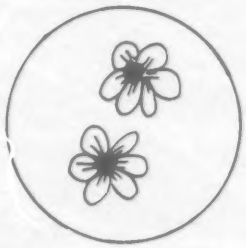
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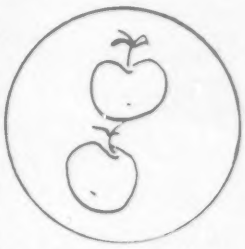
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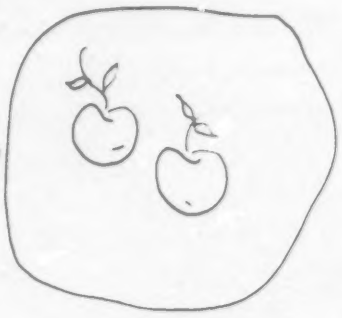
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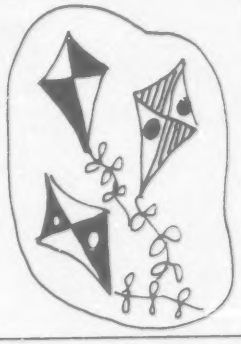
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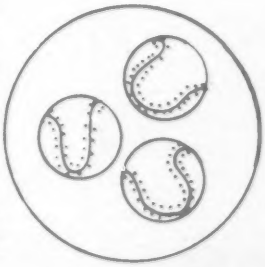
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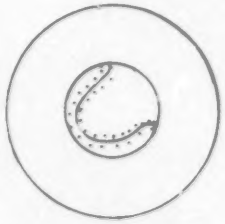
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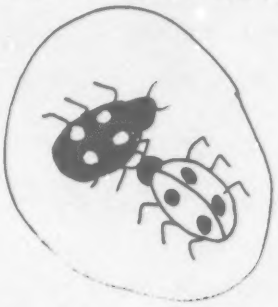
P.O. 0.02.01.02

NAME: _____ CLASS: _____

Read each line.
Color the group with the most objects.

and

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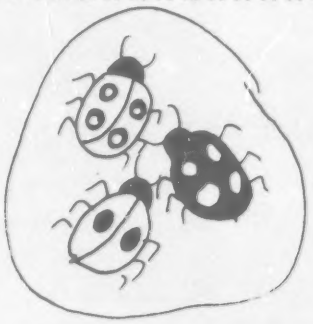

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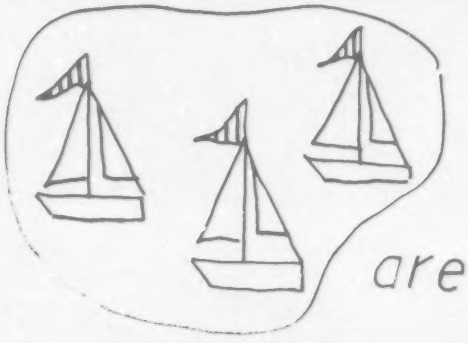
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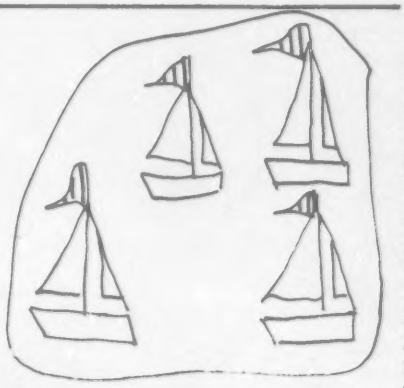

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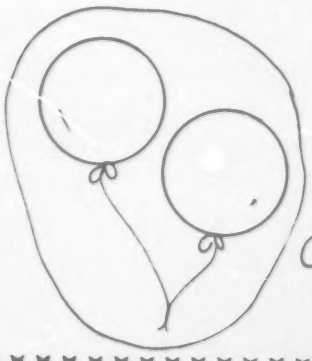
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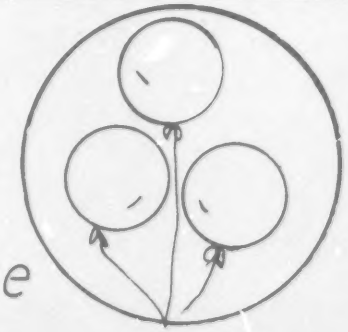


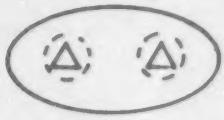
0.02.02 ADD ONE

(4-5 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

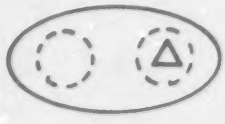
0.02.02.01 add 1 object to 1 object;
e.g.,



0.02.02.02 add 1 object to 2 objects;
e.g.,

0.02.02.03 add 1 object to 3 objects;
e.g.,

0.02.02.04 add 1 object to 0 objects.
e.g.,



0.02.02

VOCABULARY

TERMS

plus
equals
more
joining
adding

GETTING STARTED

Distribute drawing paper and crayons so that each student can draw a picture of a flower. Using these pictures, say, "Mother planted two flowers in a flower box/pot." Have students draw the pictures. Say, "As the flowers began to grow, there was room for still another flower. Mother planted one more flower in the box." Ask the students to draw one more flower. Elicit that by adding the flower, there are now more flowers in the group.

Ask the students to tell their own put together stories.

Tell joining stories using the students. Say, "One day I decided to take a walk. I knocked on my neighbor's door to ask if she would join me." Ask a student to join you. Say, "We decided to go shopping and knew that Marissa and Steven would want to come so we asked them to join us." Ask these students to join you while walking. At various points in the story, ask questions which elicit that we are adding to our group each time someone joins the walk.

At the conclusion of the story, ask the students to retell the story.

0.02.02

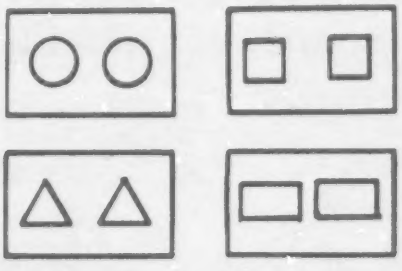
0.02.02.01 add 1 object to 1 object

STRATEGY 1: Ask a student to stand. Say, "Joan wants to play catch. She needs a partner." Ask another student to play the part of the partner. Say, "We started with one and now there are two. They can play catch. One plus one equals two." Ask a student to retell the story.

Create other stories which can be dramatized and then ask the students to create their own.

STRATEGY 2: Distribute a piece of drawing paper cut in half, paste, and 2 green circles, 2 blue squares, 2 red triangles and 2 yellow rectangles in an envelope to each student. Demonstrate as you say, "Please take out a green circle and paste it on the top box of your paper. How many green circles are on your paper? Find another green circle in your envelope and paste it next to this green circle. How many green circles are we adding? How many green circles do we have altogether?" Elicit from the students that we started with one circle and then added another circle. Now we have two circles. Say, "One plus one equals two."

Repeat this procedure using the other shapes.
e.g.,



0.02.02.02 add 1 object to 2 objects

STRATEGY 1: Distribute pictures of the story objects to each student. Tell a story using bicycle wheel pictures. Say, "Andy wants to ride his tricycle but it has only two wheels. Place pictures of 2

STRATEGY 1: cont'd

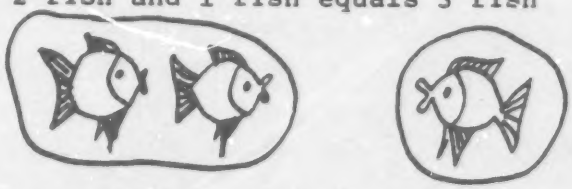
wheels on your desk. How many wheels does a tricycle need?" Elicit it needs three wheels. Say, "Andy's father bought another wheel. Place another wheel picture on your desk. How many wheels does the tricycle now have? (3) Who can tell us about this number story?"
e.g.,

2 wheels and 1 wheel equals 3 wheels

Create similar stories to develop adding one object to two objects.

STRATEGY 2: Distribute pictures of story objects to each student, e.g., fish. Say, "Sammy is going to catch fish for his family to eat for dinner. He has already caught two fish for his mother and father. Place two fish on your desk. Sammy needs one fish for himself. Place another fish on your desk. How many fish does Sammy have in all? (3) Who can tell us about this number story?"
e.g.,

2 fish and 1 fish equals 3 fish



0.02.02.03 add 1 to 3 objects

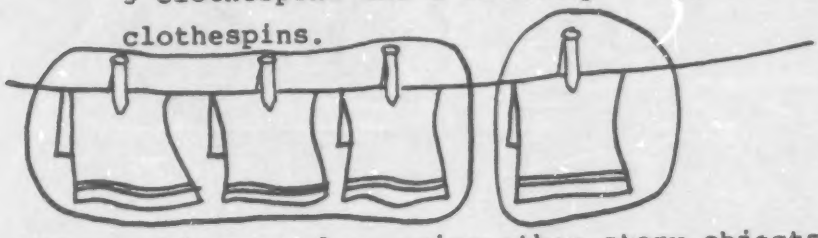
STRATEGY 1: Distribute story objects (e.g., clothing), a five inch length of string and four clothespins to each student. Say, "We're going to help Mrs. Green hang her family's laundry on the clothesline. Mrs.

STRATEGY 1: cont'd

Green places three towels on the clothesline. Place three clothespins on your clothesline. She needs to hang one towel for herself, so place another clothespin on your clothesline. How many clothespins does Mrs. Green need for all the towels? (4) How many clothespins are on the line in all? Who can tell us this number story?"

e.g.,

3 clothespins and 1 clothespin equals 4 clothespins.



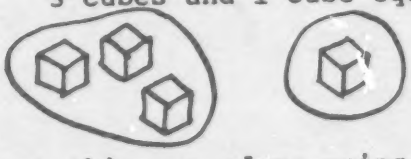
Repeat this procedure using other story objects.

STRATEGY 2:

Distribute one paper bag filled with 3 cubes to each student. Say, "Open your bag and find out how many cubes you have. Count your cubes. How many cubes do you have?" Distribute a second bag containing one cube. Say, "Open this bag to find out how many cubes you have." Have students join the groups of cubes. Say, "We have four cubes altogether. Who can tell us a number sentence about what we have done?"

e.g.,

3 cubes and 1 cube equals 4 cubes.



Repeat this procedure using other manipulative materials.

0.02.02

0.02.02.04 add 1 object to 0 objects

STRATEGY 1: Distribute a variety of toy pictures to each student. Say, "Clarence told his father that he could not play basketball because he did not have a basketball. How many basketballs does Clarence own? (0) His father bought him a basketball. Place your basketball picture on your desk. Now, how many basketballs does Clarence own? (1) Clarence started with zero or no basketballs. His father bought him one. Zero plus one equals one."

Repeat this procedure with stories about the other toys.

STRATEGY 2: Prepare but do not distribute enough napkins and cookies for each student. Say, "How many napkins are on your desk?" (0) Now distribute one napkin to each student and say, "How many napkins do you have on your desk now? (1) What have we done?" Elicit that we added since there were zero napkins on the desk and then one was given to each student. Say, "Zero plus one equals one."

Repeat this activity using the cookies.

P.O. 0.02.02.01

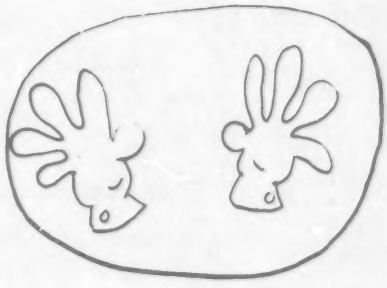
NAME: _____ CLASS: _____

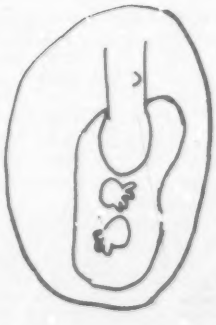
Tell an addition story.
Color the pictures.

and

are

and

are
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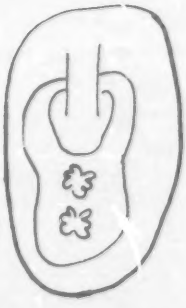
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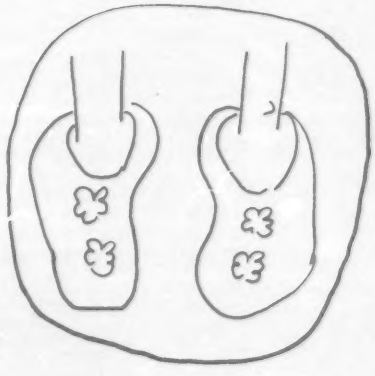
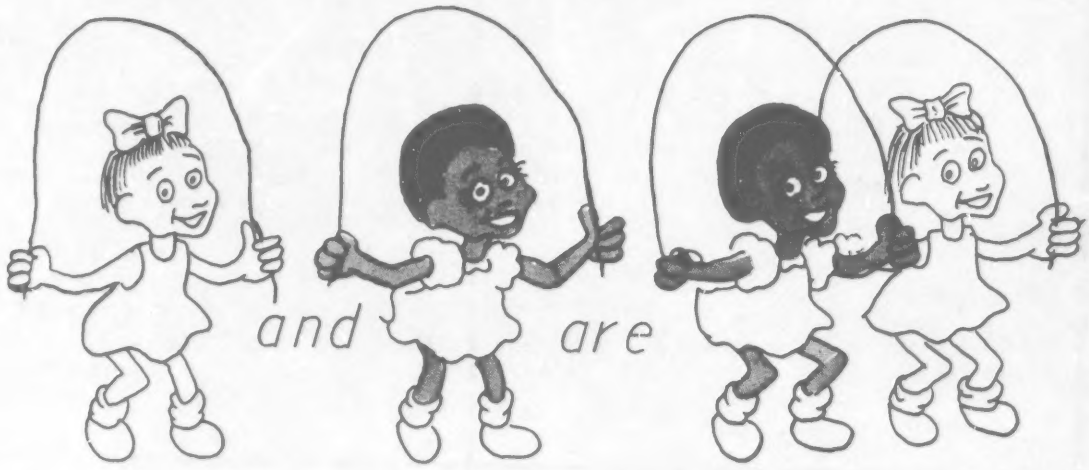


P.O. 0.02.02.01

NAME: _____ CLASS: _____

How many students are there in all?
Tell a number story.



P.O. 0.02.02.02 & .03

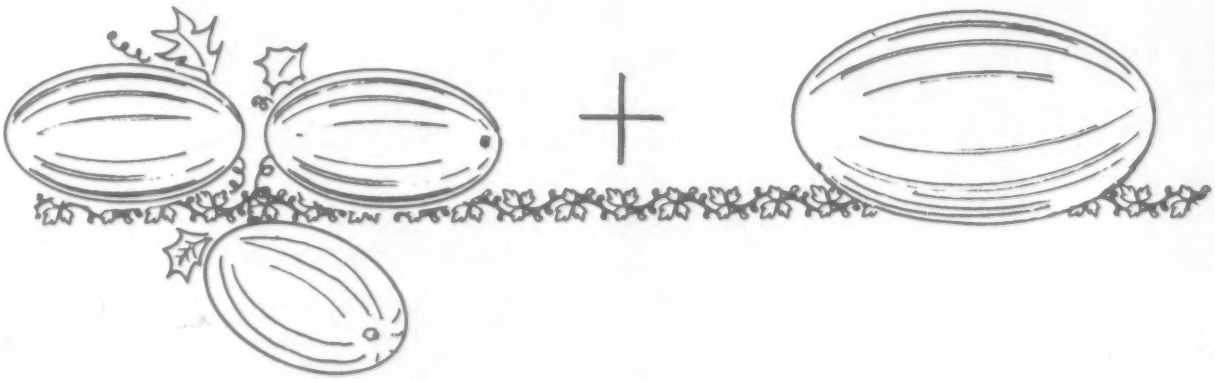
NAME: _____ CLASS: _____

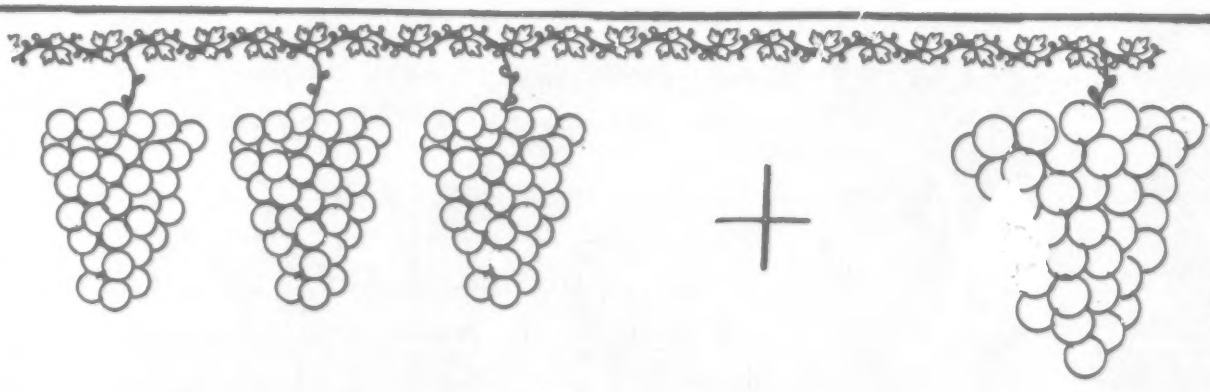
Join the groups. Circle and color.

P.O. 0.02.02.03

NAME: _____ CLASS: _____

Tell a number story.





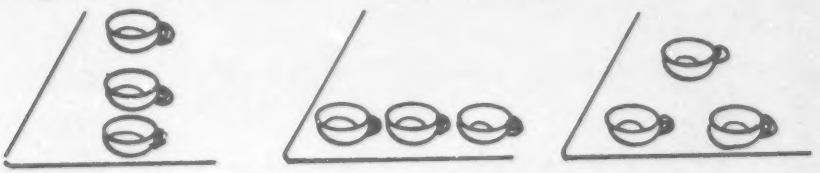
0.01.10 CONSERVATION OF THE NUMBER IN A SET

(3 lessons)

PERFORMANCE OBJECTIVES

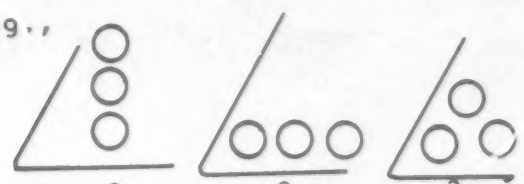
The student will be able to...

0.01.10.01 name sets of objects arranged in vertical, horizontal or random position;
e.g.,

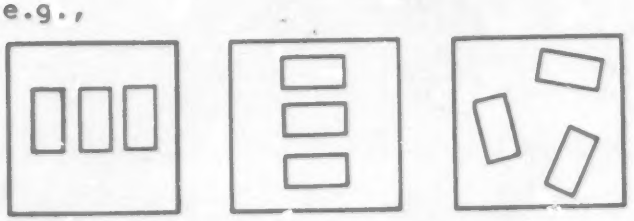


a set of cups a set of cups a set of cups

0.01.10.02 name the number in a set of objects in a vertical, horizontal or random position;
e.g.,



0.01.10.03 understand that counting objects in different positions does not change the number.
e.g.,



0.01.10

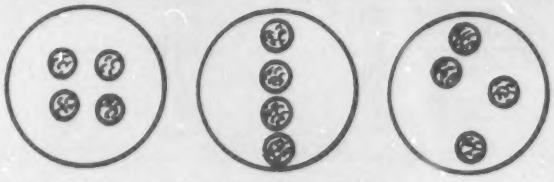
VOCABULARY

TERMS

a set
number
count

GETTING STARTED

Place plates with four cookies on each table, enough cookies for the students at the table. Arrange the cookies in random order.
e.g.,



Say, "Look at the amount of cookies on the plates. Each plate has the same amount of cookies."

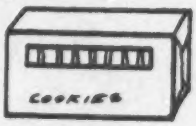
Prepare 4 pictures of a cat and 4 pictures of hats. Say, "The four little cats have lost their hats and they began to cry. You've lost your hats you silly cats, but do not cry for we have found them." Place the four cat pictures on the chalkboard or flannel board. Say, "Who could give each cat a hat?" After this task is completed, rearrange cats and hats in different positions. Repeat procedure. Say, "We still have the same amount of cats and hats."

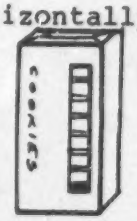
0.01.10

0.01.10.01 **name sets of objects arranged in vertical, horizontal or random position**

STRATEGY 1: Place students into groups. Prepare and distribute identical packages of donuts or cookies to each group of students. Say, "Each package has the same amount of cookies (or donuts.)" Demonstrate as you say, "Hold one package horizontally and the other vertically."

e.g.,





Say, "Does one group have more than the other or are they both the same? No matter how we hold the packages we both have the same amount."

STRATEGY 2: Distribute 4 discs, cubes or blocks to each student. Demonstrate as you say, "Make a row using all your discs on this line (horizontal). Change your row so that it looks like mine (vertical). Can you show these discs in another way? (Place the disc in a random pattern.) Has our number of discs changed? We can show these discs in many ways but the number will stay the same."

0.01.10.02 **name the number in a set of objects in a vertical, horizontal or random position**

STRATEGY 1: Distribute worksheets with several cube patterns and 4 cubes to each student. Say, "Place the cubes one at a time on a pattern. Count the cubes as you place them. How many cubes did you place on the pattern? Remove the cubes and color the pattern."

STRATEGY 1: cont'd

Repeat this activity for each pattern on the worksheet. Say, "Did the number of cubes stay the same in all the patterns? Can you make other patterns with the same number of cubes?"

STRATEGY 2:

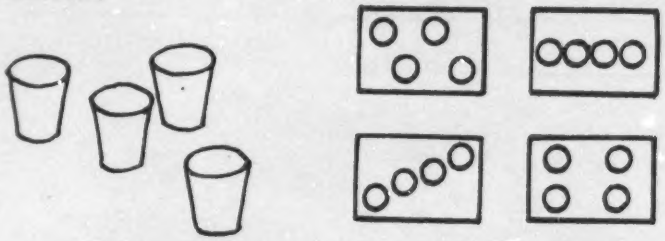
Display dot (object) cards which show the same number of dots (objects) on each side, but positioned differently. Say, "Name the number of dots in each group on the card." Elicit responses from students which show they recognize that the number in each set is the same, e.g., "Card A has 3 dots across and 3 dots up and down."

0.01.10.03 understand that counting objects in different positions does not change the number

STRATEGY 1:

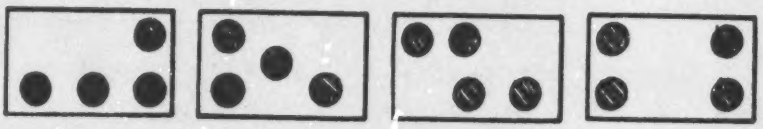
Distribute to each student 4 paper cups and a collection of placemats with 4 circles in different arrangements.

e.g.,



Say, "Place the cups on the circles of one of the placemats. Is there a cup to cover each circle?" Repeat this procedure for each placemat and say, "The number of objects in a group do not change even when the arrangement of the objects has changed."

STRATEGY 2: Prepare a set of cards for each student having 4 holes in varying positions.

e.g., 

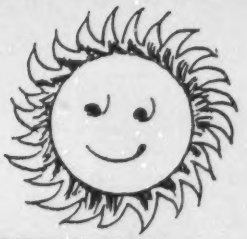
Distribute the cards and 4 buttons to each student. Say, "Place the buttons on your desk so that they match one of the large cards. Does the group on the card look like your group of buttons? Count each button in the group. How many buttons are in the group?" (4)

Repeat this procedure with each card and say, "The number of objects in a group remains the same even when you rearrange them."

Allow the students time to discover new patterns on their own.

P.O. 0.01.10.01

NAME: _____ CLASS: _____

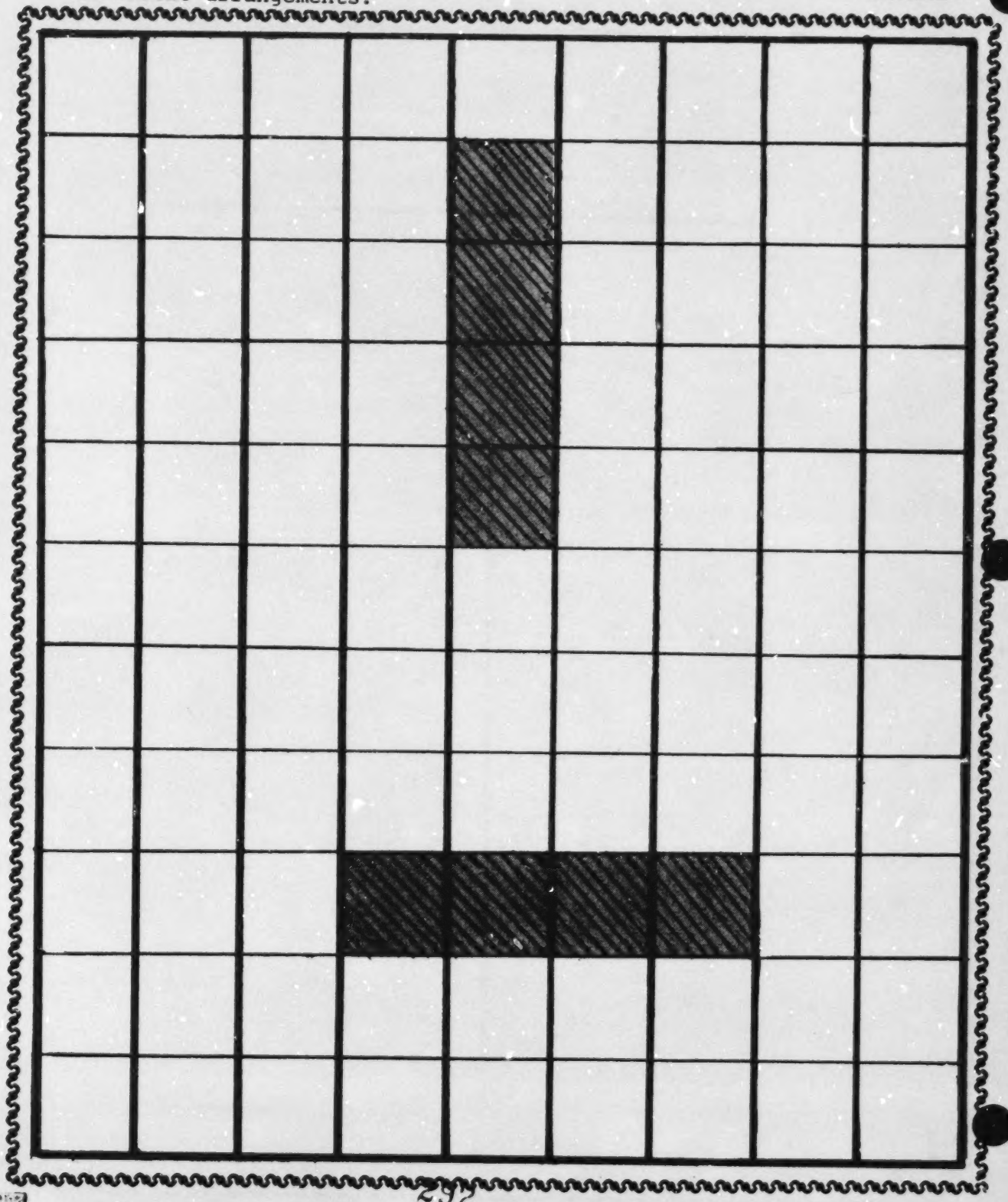


Draw a group of four beads on each string.

P.O. 0.01.10.02

NAME: _____ CLASS: _____

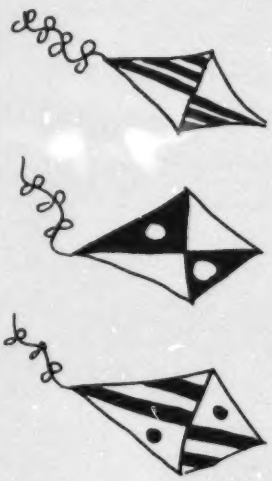
Place four interlocking cubes on each pattern. Make and color other patterns using the same number of cubes in different arrangements.

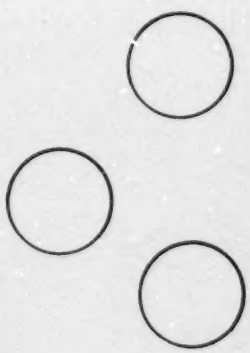


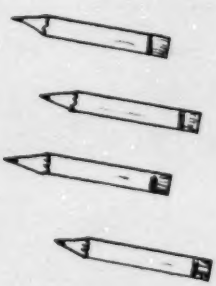
P.O. 0.01.10.02

NAME: _____ CLASS: _____

Match each numeral to the boxes which show that number of objects.





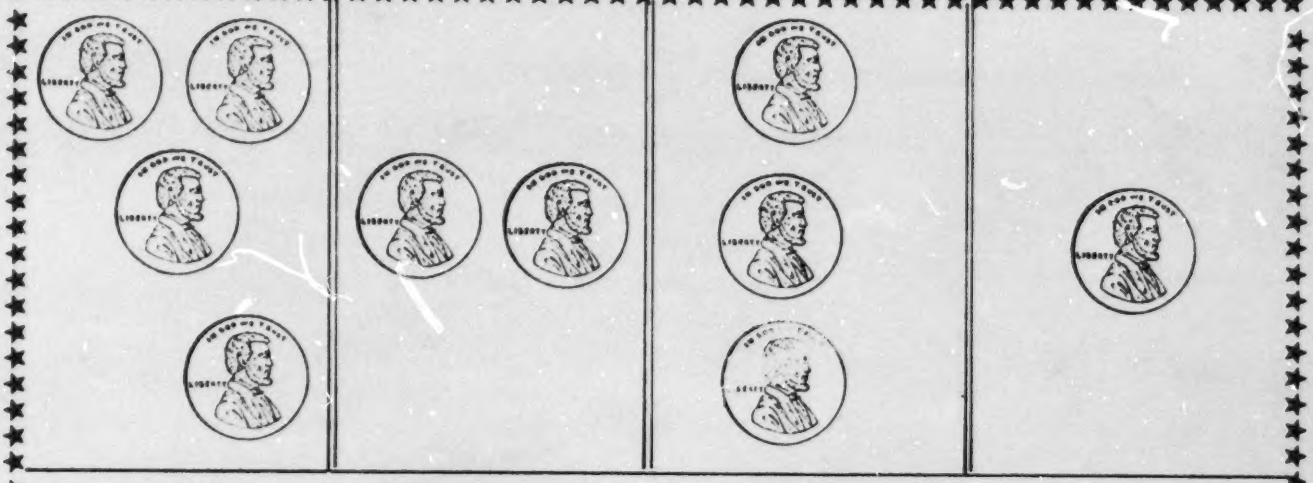


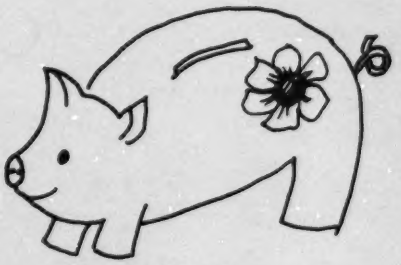
1 3 4 2

P.O. 0.01.10.03

NAME: _____ CLASS: _____.

Match the boxes with the same number of coins.

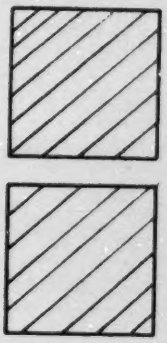


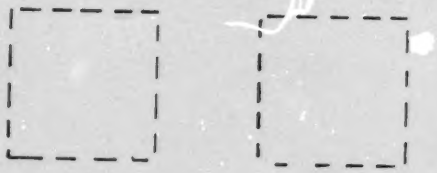


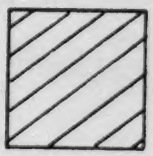
P.O. 0.01.10.03

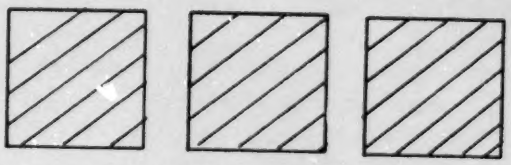
NAME: _____ CLASS: _____

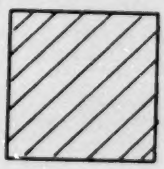
Make different arrangements using the same number of cubes.

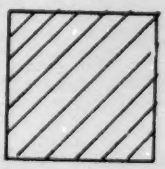


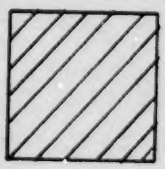


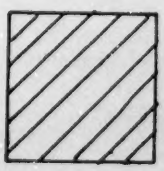


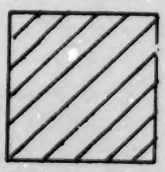












0.12.01 NUMBER RELATIONSHIPS

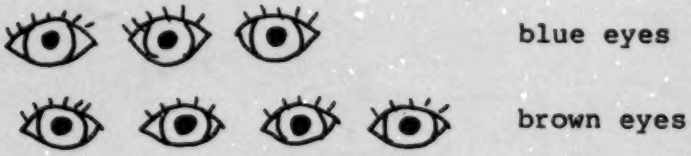
(6-7 lessons)

PERFORMANCE OBJECTIVES

The student will be able to...

0.12.01.01 construct a bar graph using blocks/cubes;
e.g.,

0.12.01.02 transfer a graph to a pictorial representation;
e.g.,

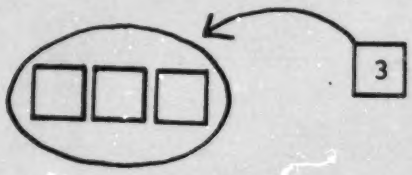


0.12.01.03 interpret pictorial representations as those representing concrete objects or people;
e.g.,

4 shoes

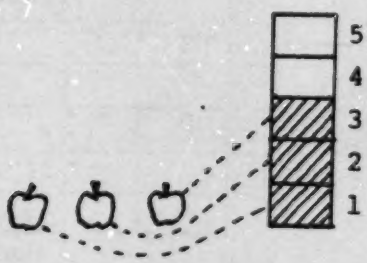
2 girls

0.12.01.04 identify number relationships using symbols and pictures;
e.g.,

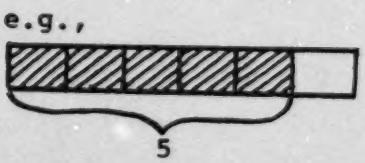


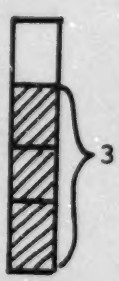
0.12.01.05 count aloud the number of squares that are colored on a bar graph;
e.g.,

0.12.01.06 color the corresponding number of squares on a vertical bar graph when given concrete objects or the pictorial representation;
e.g.,



0.12.01.07 write the numeral that represents the number of squares colored on a vertical and horizontal bar graph.
e.g.,





0.12.01

VOCABULARY

TERMS

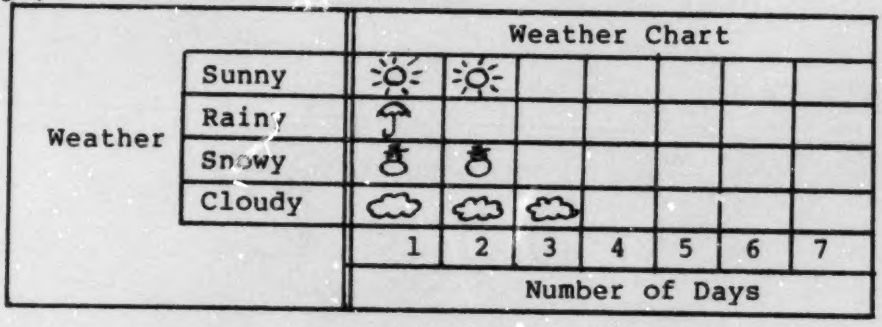
graph

GETTING STARTED

Ask the students to place their mittens and gloves in a large box. Say, "What did you wear today, mittens or gloves? Let's put the mittens in one row." Demonstrate placing the mittens vertically or horizontally. Repeat using the gloves. Compare both groups. Say, "We have more (gloves) than (mittens). We have less (mittens) than (gloves). More students wore (gloves) than (mittens). Less students wore (mittens) than (gloves). Repeat this procedure using chocolate and plain milk.

Prepare a weather chart.

e.g.,



Record weather on a daily basis using pictures which are representative of weather. Interpret the chart as an ongoing activity.

e.g.,

How many days were sunny?
How many days were rainy?
Did we have more rainy or sunny days?

0.12.01

0.12.01.01 **construct a graph using blocks/cubes**

STRATEGY 1: Prepare and distribute an empty boutique tissue box, paste and 4 name cards to each student. Say, "Paste a name card on each of the long sides of your tissue box." Demonstrate as you say, "If you are a boy, stack your tissue box in this column. If you are a girl, stack your tissue box in this column." Help the students stack each box. After each student has had a turn, say, "Are there more boys or girls in this class? Are the columns the same? Which column has more? Which column has less?"

STRATEGY 2: Prepare and display a picture of a school bus, a car, students walking and a block for each student. Say, "How did you come to school today?" Help each student place the block vertically on the correct picture. When each student has had a turn, say, "Which way did most students come to school today? Which way was used the least? Did any of the ways have the same amount?" Repeat questioning as determined by the graph.

Repeat this procedure with graphs about boys and girls or vanilla and chocolate cookies.

0.12.01.02 **transfer a graph to a pictorial representation**

STARTEGY 1: Display the boy/girl graph constructed for P.O. 0.12.01.01. Prepare a large/long rectangular paper divided in half lengthwise and enough 2 inch circles for each student.

0.12.01

STRATEGY 1: cont'd

Distribute the 2 inch circles and say, "Draw a picture of your face. Each of you is going to paste your picture in the correct column." After each student has had a turn, say, "Are there more boys or girls in this class? Are the columns the same? Which column has more? Which column has less?"

Repeat this procedure for the How We Came to School graph.

STRATEGY 2:

Prepare a long paper towel divided in half lengthwise and vanilla and chocolate cookies. Say, "Select your favorite cookie. Did you choose a vanilla or chocolate cookie?" Help each student in turn, place the cookie vertically on the paper towel in the correct column. When each student; has had a turn, say, "Are the columns the same? Which column has the most? Which column has the least? Are there more chocolate or more vanilla cookies? Are there less chocolate or less vanilla cookies?"

0.12.01.03 interpret pictorial representations as those representing concrete objects or people

STRATEGY 1:

Prepare pet pictures, drawing paper and scotch tape. Discuss types of pets and which pets are owned by the students. Display a picture of each pet discussed. Distribute a small piece of drawing paper to each student. Say, "Draw your pet or a pet you would like." Help the students tape their pet pictures next to the correct picture shown on the chalkboard. After each student has had a turn, count and write the number of pictures in each row.

STRATEGY 2: Place cards with the names of the months along a table edge. Give each student a block. Say, "Tell us the month of your birth and then place your block on that month." When each student has had a turn, say, "Which month has the most birthdays? Which month has the least? Do any months have the same number of birthdays? How many birthdays in September, November, January, ...?" Place numeral cards on top of the blocks as the questions are answered.

e.g.,

Repeat this procedure with other topics, e.g., favorite color, favorite ice cream, shoe color, and/or family members.

0.12.01.04 identify number relationships using symbols and pictures

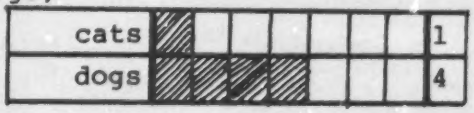
STRATEGY 1: Prepare and distribute 4 numeral cards (1-4), ten buttons and 4 small plastic baskets. Say, "What is this numeral? Place one button in the basket." Repeat this procedure for numeral cards 2-4. Reverse this procedure using buttons first and cards last.

STRATEGY 2: Prepare and distribute a set of numeral cards (1-4) for each student. Prepare a set of corresponding picture cards. Say, "I'm going to hold up a picture card. Hold up the numeral card that matches the picture card." When all picture and numeral cards have been matched, reverse the procedure.

0.12.01.05 count aloud the number of squares that are colored on a bar graph

STRATEGY 1: Prepare an illustrated chart based upon the previous discussion concerning pets.

e.g.,

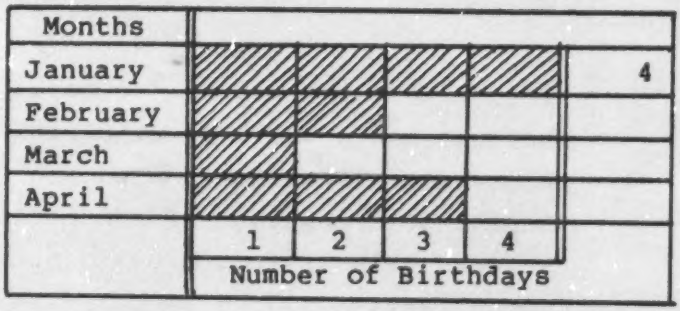


Say, "This chart shows us how many of each type of pet the students in this class own. Let's count the squares for cats." Write the numeral next to the row. Continue this procedure to complete the chart.

Repeat this procedure using other chart topics.

STRATEGY 2: Prepare a chart based upon birth months with the number of birthdays shaded for each month.

e.g.,

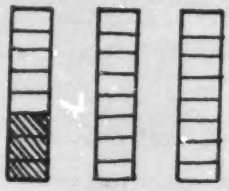


Say, "Here's a chart that shows the birth months for each student in our class. Each shaded box shows one birthday. Let's count how many birthdays are in January." Write the numeral after each row.

Continue this procedure for the other months. Ask the students to count aloud. Write the numeral after each row.

0.12.01.06 **color the corresponding number of squares on a vertical bar graph when given concrete objects or the pictorial representation**

STRATEGY 1: Prepare a worksheet with 3 vertical bar graphs for each student and a set of pictures of families. Show a picture of a family and say, "Who do you see? (Mother, father, brother, sister.) How many people are in the family? I'm going to show you an easy way to show how many people are in the family." Draw a vertical bar graph on the chalkboard and distribute a worksheet to each student.
e.g.,



Say, "We're going to shade one box for each family member." Name the family member as each box is shaded.

Repeat this procedure with pictures of other families having four or fewer members.

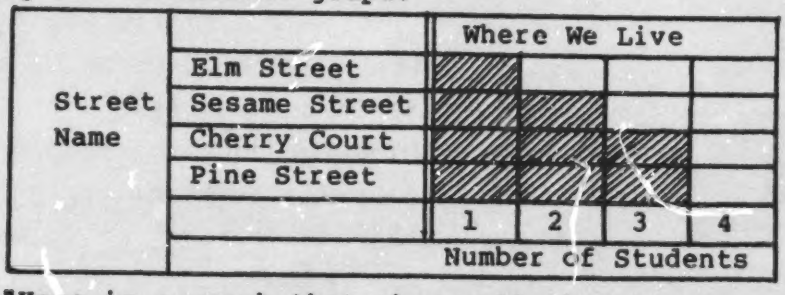
STRATEGY 2: Prepare clear pencil cases or containers with 4 items (e.g., pencil, crayon, sharpener, eraser) and a worksheet with 3 vertical bar graphs for each student. Hold up one pencil case and say, "What do you see? How many items are in the pencil case? Let's count them. I'm going to show you an easy way to show how many items are in the pencil case." Draw a vertical bar on the chalkboard and distribute a worksheet to each student. Say, "We're going to shade in one box for each item in our pencil case." Ask the students to name each item as each box is shaded. Repeat this procedure using other pencil cases with four or fewer items.

0.12.01

0.12.01.07 **write the numeral that represents the number of squares colored on a vertical and horizontal bar graph**

STRATEGY 1: Prepare horizontal and vertical bar graphs which show the names of streets where students live. Display the horizontal graph.

e.g.,

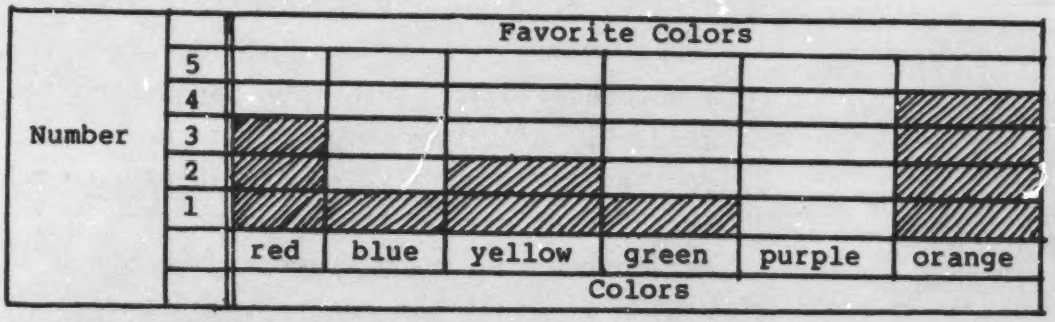


Say, "Here is a graph that shows all the streets where we live. How many students live on Elm Street? Cherry Court? ... " Shade in the boxes representing the number. Ask several students to come to the chalkboard and write the numeral represented.

Repeat this procedure with the vertical bar graph of the streets.

STRATEGY 2: Prepare a vertical chart of colors.

e.g.,



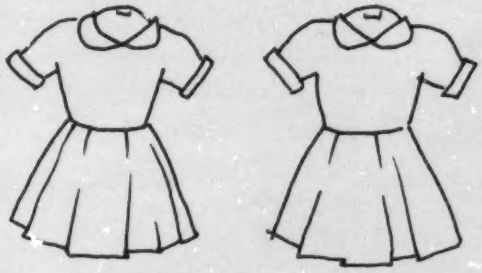
Say, "Here is a graph that shows the favorite colors of people I know. How many people on this graph like yellow best?" Ask a student to come to the chalkboard and write the numeral representing the shaded boxes for yellow. Continue asking questions about the other colors.

Repeat this procedure using a horizontal color chart.

P.O. ~~0 12 01 03~~

NAME: _____ CLASS: _____

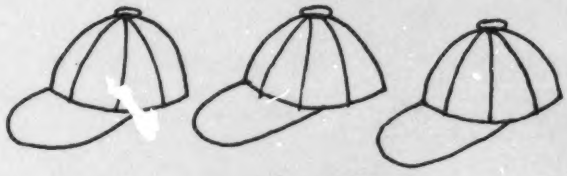
Read the problems to the students.
Each picture represents one object.



How many girls have dresses?

How many boys have ties?

How many students wore scarves?



How many students wore caps?

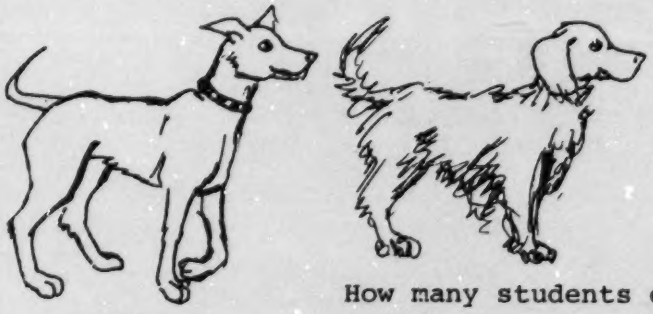
P.O. 0.12.01.03

NAME: _____ CLASS: _____

Read the problems to the students.

How many students own cats?

How many students have white hats?



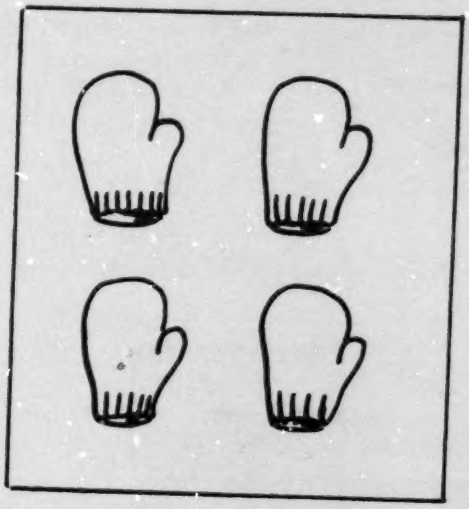
How many students own dogs?

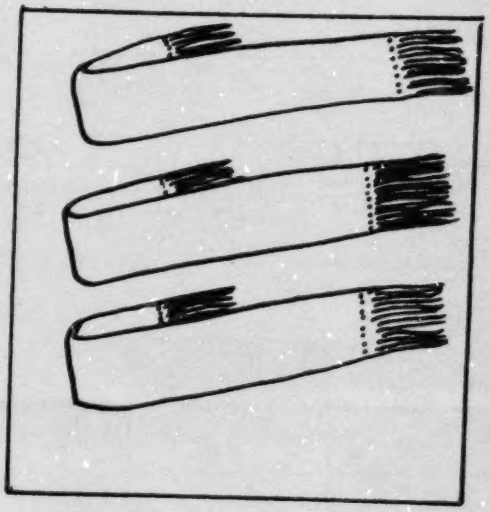
How many students own turtles?

P.O. 0.12.01.04

NAME: _____ CLASS: _____ .

Match the picture to the numeral.





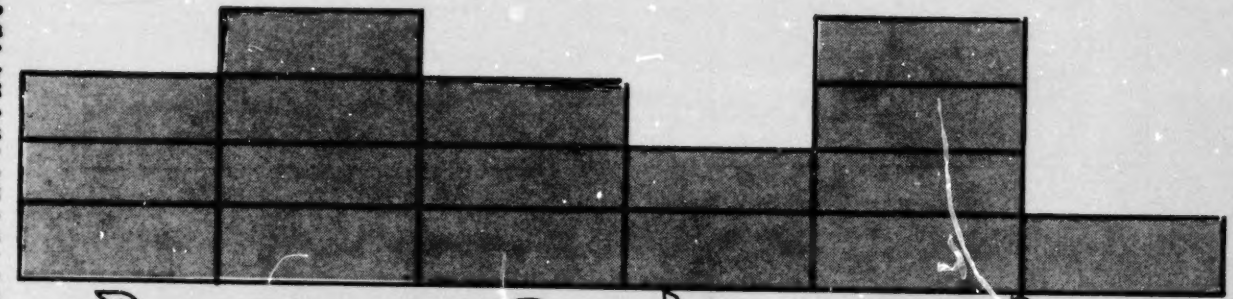
1 2 3 4

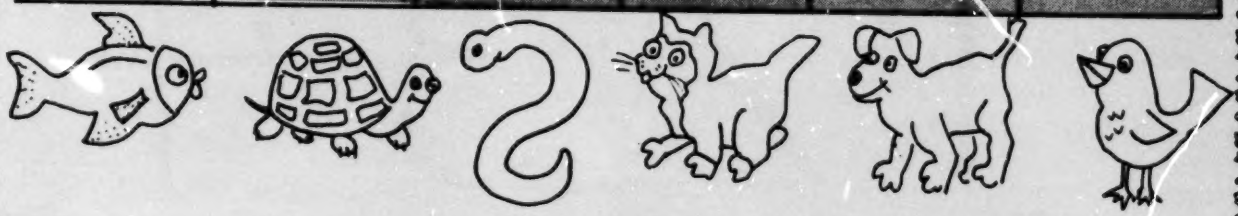
P.O. 0.12.01.05

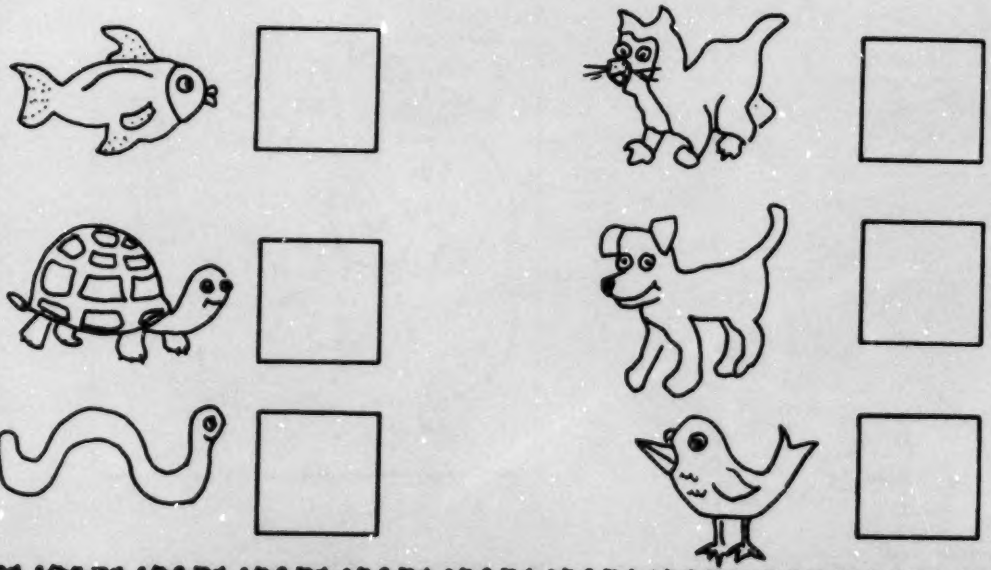
NAME: _____ CLASS: _____

Count the number of animals. Write the numeral in each box.

PETS



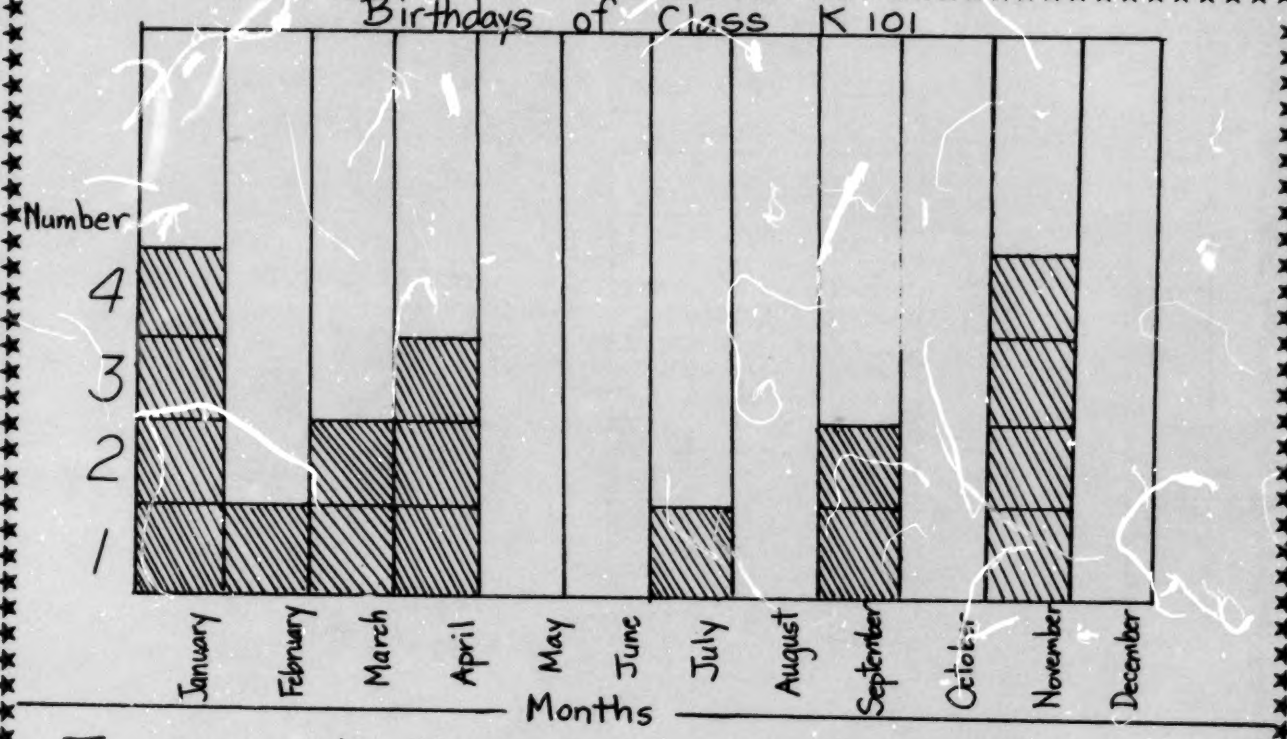




P.O. 0.12.01.05 & .07

NAME: _____ CLASS: _____

How many birthdays?



January birthdays _____.

March birthdays _____.

May birthdays _____.

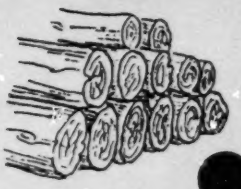
July birthdays _____.

September birthdays _____.

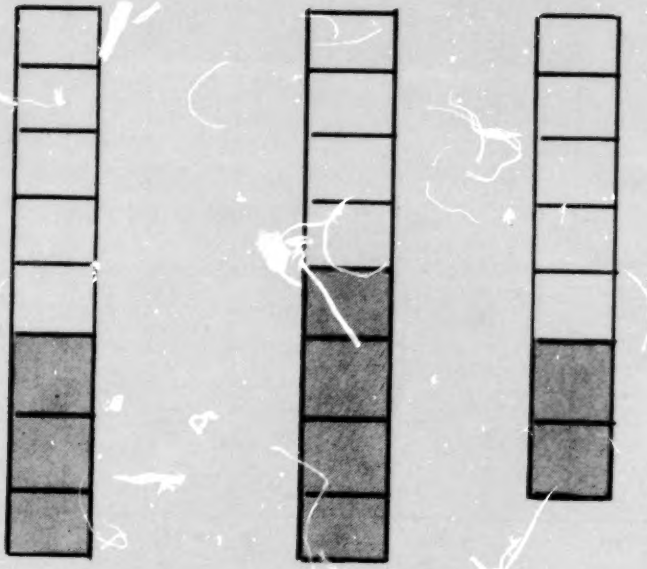
November birthdays _____.

P.O. 0.12.01.05 & .07

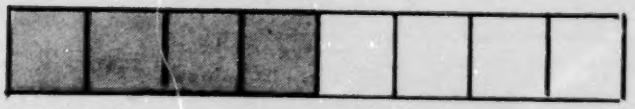
NAME: _____ CLASS: _____



Count the number of shaded boxes.
Write the numeral on the line.



_____ _____ _____



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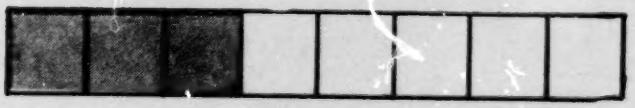

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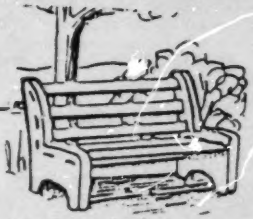
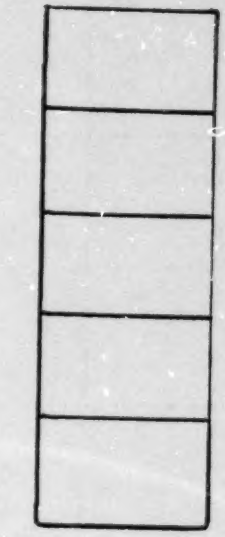
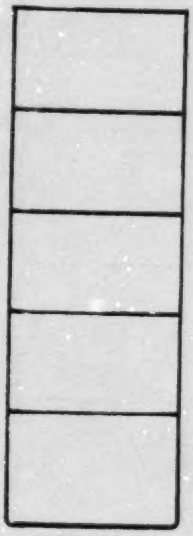
P.O. 0.12.01.06

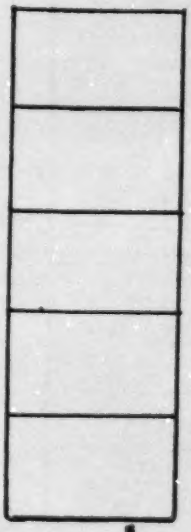
NAME: _____ CLASS: _____

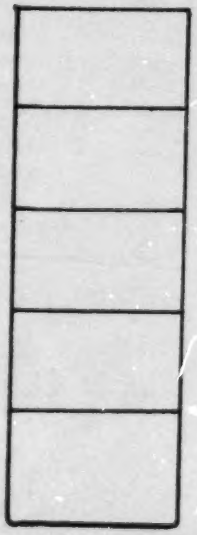


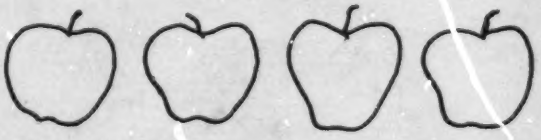
Color one square for each fruit.







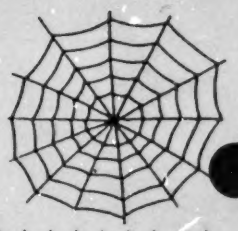


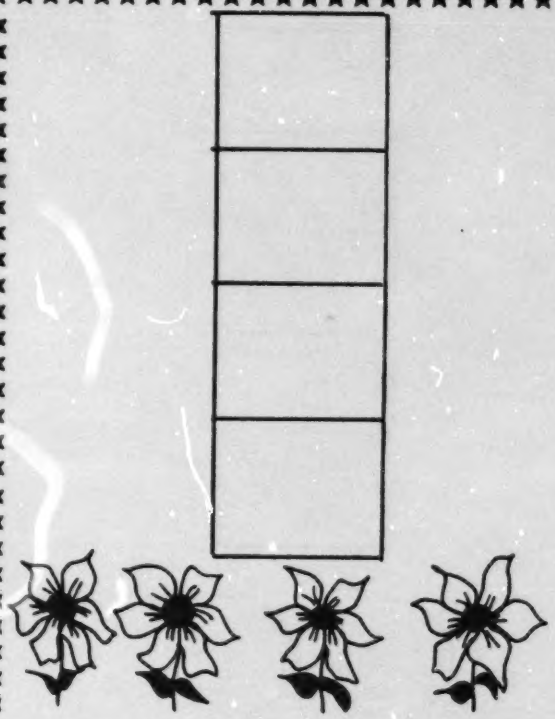


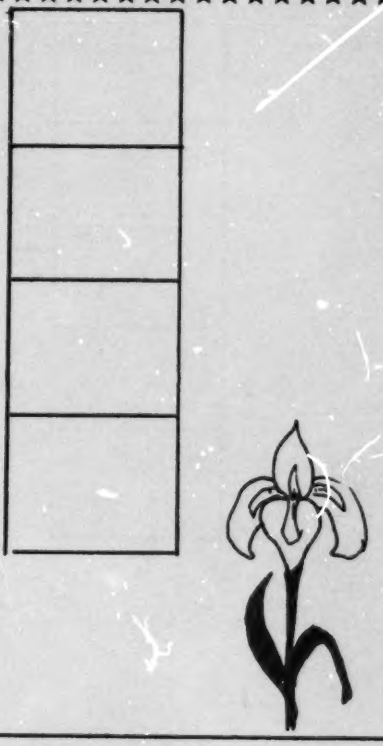
P.O. 0.12.01.06

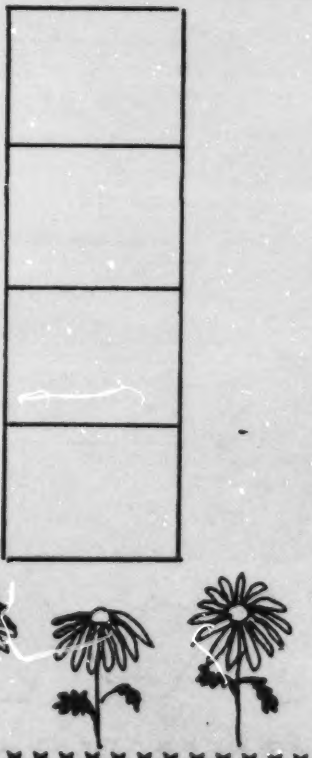
NAME: _____ CLASS: _____

Color one box for each flower.









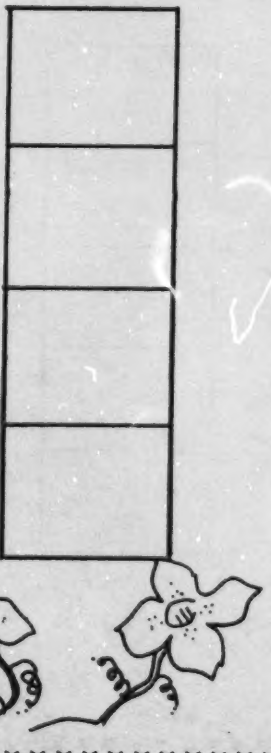


TABLE OF SYMBOLS

DEFINITIONS	SYMBOL	DEFINITIONS	SYMBOL
plus; add; positive	+	line	↔
minus; subtract; negative	-	ray	→
plus or minus	+ or -	perpendicular lines	⊥
times; multiply	· or X	parallel lines	∥
divide	÷	degree	°
divide	)	equals	=
square root	$\sqrt{\ }$	is not equal to	≠
cube root	$\sqrt[3]{\ }$	is less than	<
angle	∠	is greater than	>
between two numerals or letters at the end of a series or sequence; and so on	...	encloses a set when numbers are included: empty set when empty	{ }
		subset	⊂
triangle	△	intersection	∩
rectangle	▭	union; join	∪
parallelogram	▱	percent	%
circle	⊙	foot, minute	'
line segment (as $\overline{AB}$)	——	inch, second	"

METRIC TABLE

PREFIX	VALUE	LENGTH	CAPACITY	WEIGHT (MASS)
KILO	1000	kilometer* (km)	kiloliter (kl)	kilogram* (kg)
HECTO	100	hectometer (hm)	hectoliter (hl)	hectogram (hg)
DEKA	10	dekameter (dam)	dekaliter (dal)	dekagram (dag)
	1	meter* (m)	liter* (l)	gram* (g)
DECI	$\frac{1}{10}$ or .10	decimeter (dm)	deciliter (dl)	decigram (dg)
CENTI	$\frac{1}{100}$ or .01	centimeter* (cm)	centiliter (cl)	centigram (cg)
MILLI	$\frac{1}{1000}$ or .001	millimeter* (mm)	milliliter (ml)	milligram* (mg)

* most frequently used

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BASIC CLASSROOM EQUIPMENT CHECKLIST

MATERIALS:

Abacus - Class size/individual. ____
Attribute blocks..... ____
Balance Beam..... ____
Calculators..... ____
Calendar - class size..... ____
Clock - large - class size..... ____
Clock - individual size..... ____
Clock - stamp..... ____
Coin stamps..... ____
Compass..... ____
Cubic counting blocks..... ____
Cuisenaire rods..... ____
Dominoes..... ____
Felt cut-outs..... ____
Flannel board..... ____
Flash cards..... ____
Fractional parts (assorted)..... ____
Geo boards..... ____
Geometric patterns..... ____
Hundred charts - class size/ind. ____
Laminating paper..... ____
Magnetic board..... ____
Magnetic discs..... ____
Measuring tools-English, Metric (rulers, scales, compasses, protractors, beakers, cups, spoons, thermometers)..... ____
Number lines - class/individual. ____
Numerals - tactile..... ____
Plastic discs..... ____
Play money..... ____
Powers of Ten..... ____
Protractor..... ____
SEE calculators..... ____
Scale..... ____
Screen (pull-down type)..... ____
Spinners..... ____
Squared place value material.... ____
Standard playing cards..... ____
Tangrams..... ____
Tens frame..... ____
Timers (1,2,3 minute)..... ____
Tokens (various sizes/colors)... ____
Trundle wheel..... ____
Unifix cubes..... ____
Unifix 100 board..... ____

SUPPLIES:

Adding machine tapes (for classroom/ind. number lines)..... ____
Chalk..... ____
Construction paper..... ____
Elastic bands..... ____

BASIC CLASSROOM EQUIPMENT CHECKLIST

SUPPLIES: cont'd

Envelopes (all sizes)..... ____
Erasers, board/individual..... ____
Felt pens (all sizes)..... ____
Ditto, Rexograph paper..... ____
Glue..... ____
Gram weights..... ____
Graph paper (1 cm, <, 1")..... ____
Grease pencils..... ____
Oak tag..... ____
Paper clips..... ____
Paste..... ____
Plastic discs..... ____
Pointer..... ____
Primary pencils..... ____
Rubber bands..... ____
Scissors - primary, left hand.. ____
Scotch tape..... ____
Spinner..... ____
String..... ____
Tape..... ____

COLLECTIBLES:

Beads and beans..... ____
Bottle caps..... ____
Buttons..... ____
Cardboard (all sizes)..... ____
Cereal boxes..... ____
Coffee cans..... ____
Detergent boxes, shoe boxes, meat trays, and plastic containers..... ____
Egg cartons..... ____
Felt for desk mats..... ____
Ice cream sticks..... ____
Juice containers..... ____
Macaroni..... ____
Magazines..... ____
Menus..... ____
Metrically measured cartons.... ____
Milk containers..... ____
Newspapers..... ____
Paper plates..... ____
Sand..... ____
Spools..... ____
String, yarn..... ____
Styrofoam..... ____
Tongue depressors..... ____
Wire hangers..... ____
Ziploc Bags..... ____